

**SERVICE SETTINGS FOR AN AGING SOCIETY:  
A Community Ordering Principle**

by

Gaius Grant Nelson

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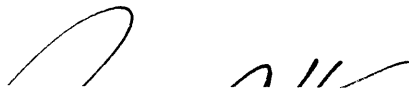
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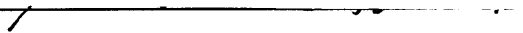
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**SERVICE SETTINGS FOR AN AGING SOCIETY:  
A Community Ordering Principle**

by  
Gaius Grant Nelson

Submitted to the Department of Architecture on June 16, 1987  
in partial fulfillment of the requirements for the degree  
Master of Science in Architecture Studies.

**Abstract**

Current facility models used in the design of housing and service settings for older people encourage the development of urban, large scale, age-segregated institutional environments. Research has either unwittingly, or not, encouraged and perpetuated these models by stressing the need for congruence between person and dwelling environment. Such research has encouraged the movement of individuals to alternative living environments when age related changes in social, economic or health status reduce this level of congruence between person and environment based on key factors which are deemed important by gerontological researchers.

Homeownership by older people is a behavior which is increasing. This is a trend which is not likely to reverse in the future. Approximately 75% of all people over the age of 65 choose to remain in their own owned single-family residential settings. It is estimated that by the year 1995 over 80% of all older people will live in their own homes, yet research of alternative models for service delivery to support these actions is sorely lacking. The key to providing services to an increasing number of older people in our society will not be through the production of alternative housing situations. What is needed is the provision of service settings which assist these people in the maintenance of their lives within their chosen and preferred living situation.

The research undertaken in this paper will investigate the development of alternative neighborhood based service settings designed to meet this growing need. The proposed model will integrate these service settings into residential areas using the neighborhood as an urban design framework. A case study will examine the usefulness of the neighborhood concept in the planning and delivery of services to older populations within a suburban community.

Thesis Advisor: Sandra C. Howell  
Title: Associate Professor of  
Behavioral Science in Architecture

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## Acknowledgements

I would like to thank Sandra Howell, my thesis advisor, for her patience and understanding through the times when I knew what I wanted to say, but was unable to put it down on paper.

Thank you to our friends who made our stay at M.I.T. all the more worthwhile.

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Most of all many thanks to my wonderful wife Wendy Weeks, without her support I may never have accomplished all the things that needed to be done during my stay here.

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# Table of Contents

**3 Acknowledgments**

**4 Table of Contents**

**6 Introduction**

**6 An Aging Society**

The Need for Long-Term Care Services

The Aging of the Suburbs

Implication for the Future

**1 3 Environments for Aging**

The Continuum of Care

Institutional Settings

Multi-Level Facilities

Service Enriched Housing

The Blurring of the Boundaries

Continuing Care Retirement Centers

**2 2 The Neighborhood Concept**

**2 7 Case Study**

**2 7 The Community**

Definition of Neighborhoods

Use Neighborhood

**3 7 Where Older People Live**

Residential Integration

**4 1 Service Needs of Older People**

Institutional Care

Non-Institutional Care

Informal Care

Formal Community Based Care

---

<b>51</b>	<b>Existing Services in Arlington</b>
	Age-segregated Housing
	Meal Programs
	Transportation Services
	Home Care Services
	Visiting Nurses Association
	Adult Day Health Care
	Long-Term Care Facilities
<b>59</b>	<b>Segmentation in Service Delivery</b>
	Segmentation in Planning
	LTCSA Planning Area
	Home Care Catchment Area
	Characteristics of Service Settings
	Institutional vs. Community Care
<b>73</b>	<b><u>The Model</u></b>
<b>73</b>	<b>A Neighborhood Service Setting</b>
	The Nursing Home -
	A Consolidated Service Setting
	Size of Facility
	Relationship to The Neighborhood
<b>82</b>	<b>Conclusion</b>
<b>84</b>	<b>Bibliography</b>

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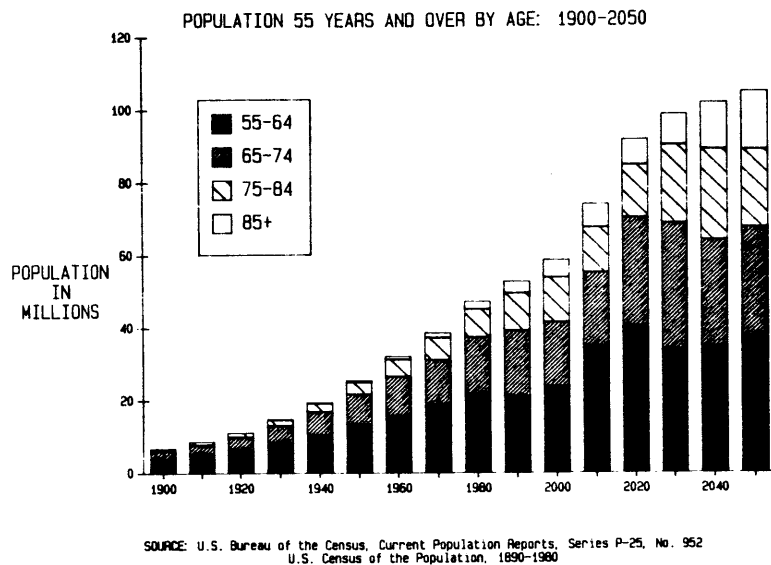
# 1 Introduction

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*The older population has increased far more rapidly than the rest of the population for most of this century. In the last two decades alone, the 65-plus population grew by more than 54 percent while the under-65 population increased by only 24 percent. Since 1960, an average of 149,000 persons a month have joined the ranks of the elderly (Soldo and Manton 1984).*

## An Aging Society

There is no doubt that the population of the United States is growing older. There have been dramatic increases in the numbers of people



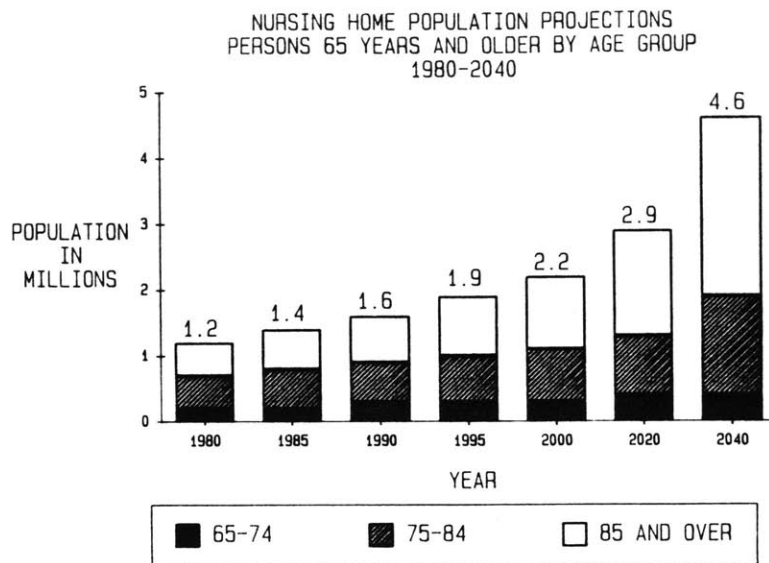
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over the age of 65, both in terms of real numbers and as a percentage of the total population. At the beginning of the century less than 1 in 25 Americans was over the age of 65. In 1985 this had increased to over 1 in 9, making a total of 28.5 million individuals 65 years of age or older. It is projected that these trends will continue well into the next century. By 2010, due to the maturation of the baby-boom, this proportion will increase to 1 in 7. By the year 2050 nearly 1 in 5 Americans are expected to be over the age of 65.

The population of older Americans is not only larger than in the past, it is also growing older. The fastest growing portion of the older population is made up of those individuals over the age of 75. This group, the so called old-old, is expected to equal nearly 50% of all elderly individuals by the year 2000 (Special Committee on Aging, United States Senate, 1986). It is precisely this group of old-old Americans which will require localized health and social services on a long-term and continual basis.

#### **The Need for Long-Term Care Services**

In announcing the formation of a new task force on long term care policies, Dr. Otis R. Bowen, Health and Human Services Secretary, quoted National Center for Health Statistics estimates that the nursing home population in the United States will more than double within

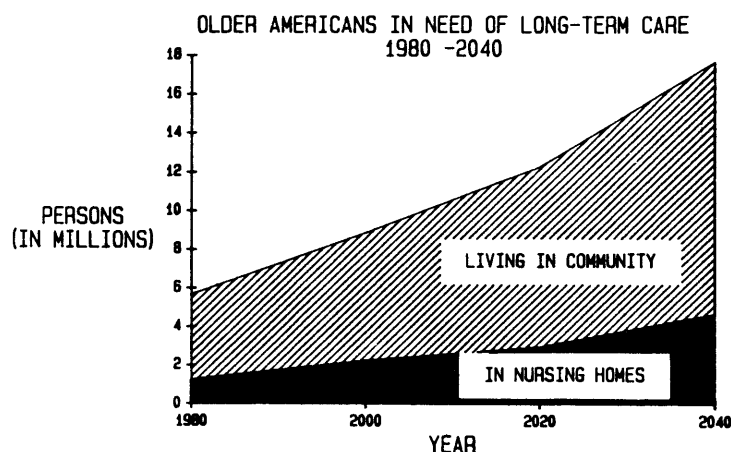


SOURCE: Manton and Soldo, "Dynamics of Health Changes in the Oldest Old: New Perspectives and Evidence," *Milbank Memorial Fund Quarterly*, Vol. 63, No. 2, Spring 1985 and unpublished tabulations from the author

the next generation (Eastman 1987). Other estimates indicate that there will be a 47% increase in the nursing home population by the year 2000 and another 100% percent increase by the year 2040. If these projections are actualized there will be a need to add over 500,000 new nursing home beds to the nations current stock of 1,400,000 beds within the *next fifteen years* and another 2.2 million beds between the years 2000 and 2040 (Manton and Soldo 1985).

At any given time, approximately 5% of all older people are likely to be in a nursing home (National Center for Health Statistics, 1977 National Nursing Home Survey). But care within a nursing home is not the only service required by older people. A 1982 National Long Term Care Survey estimated that for every





SOURCE: Manton and Soldo, "Dynamics of Health Changes in the Oldest Old: New Perspectives and Evidence," Milbank Memorial Fund Quarterly, Vol. 63, No. 2, Spring 1985 and unpublished tabulations from the author

person age 65 years or older residing within an institutional setting there are nearly four times that many living within the community and in need of some form of long-term care - approximately 4.6 million persons or 19% of the total population of older people (Special Committee on Aging, United States Senate 1986). The service needs of this population, though often non-medical in nature are nonetheless critical to the maintenance of an independent way of living and the avoidance of unnecessary institutionalization.

### The Aging of the Suburbs

In 1980, for the first time in history, there were more people over the age of 65 living in the suburbs (a total of 10.1 million people) than in central cities (8.1 million people). Suburbs, most often perceived as areas consisting mainly of young families with children, have changed drastically in the last decades. The elderly

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population within a typical suburban community in the United States now averages 11.8% (Logan 1984). This aging of the suburbs has the potential of carrying with it vast implications for the provision of health and social services to an older population increasingly in need of a wide array of services.

### **Implications for the Future**

Long-term care service provision has thus far concentrated on the construction of facilities designed specifically for this task. Much of the current stock of nursing facilities was constructed in the early 1960's and 1970's when there was an incredible push to construct a large variety of housing and institutional settings for the elderly (Koncelik 1976). Faced with an aging population, new facilities were often built without adequate knowledge or research into the long-term care needs of older people (Kayser-Jones 1986). Due to this lack of knowledge, a hospital-based model of facility design was chosen as the means for service delivery to old people requiring long-term care.

Since that time, environmental research into the psychological and sociological impacts of these settings on users has occurred (Snyder 1972, Koncelik 1976). These studies have created an increased recognition that the traditional, medical model associated with long-term care is not sufficient in and of itself

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as a response to the growing needs of older people in this country. The creation of residential settings for long-term care now receives much greater attention due to the realization that an individual is a resident a majority of the time and a patient for only a small fraction of the time.

Suggestions for the creation of non-institutional care settings range from the encouragement of social interaction among residents and with the greater community (Pastalan 1986), to the design of "open nursing homes" which are meant to return control over the environment to residents and offer as many ways out of the setting as there are into it (Koncelik 1976). But these modifications and refinements to the existing models of service-enriched settings deal almost exclusively with the details of the environment. These studies encourage the creation of age-segregated, health care settings designed as self-contained microcosms separated from the greater community without addressing the overall needs of an aging population.

Long-term care service settings must not be viewed in isolation. It is time to step back and determine whether settings being created using current models of service provision are truly being planned to meet the demands of the

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future. Demands of a population which wishes to continue living in their own homes and neighborhoods even as their need for services increases.

There is little doubt that an expansion in the development of long-term care services and settings will occur in the coming decades. But, the question as to the nature of settings designed for this purpose remains. Research into alternative frameworks for the planning of long-term care settings is sorely lacking. Now is the time to investigate the use of neighborhood based service settings as an integral part of urban design.

Service settings of this type should be looked at as a form of infra-structure investment into the design and organization of communities for an aging society.

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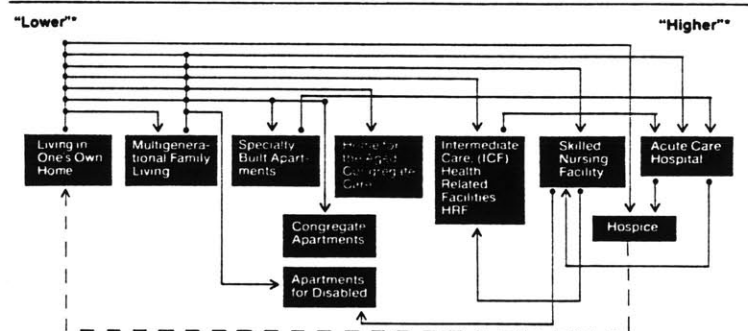
## Environments for Aging

The current approach to the planning and design of environments for older people is based on the concept of congruence between person and environment. An ideal environment is one in which the congruence between an individual's social, economic or health status and the environment in which they live are at a high level. Using this model the full range of housing options available to individuals is placed in rank order from environments providing low levels of care to those which provide high levels of care. For example, independent housing, built especially for older people, is meant to provide a secure, barrier-free, environment that promotes social interaction for a population beginning to experience the effects of aging. Such housing is thought to provide "low levels of care," meaning there are few or no staff and few services provided within the facility. At the other extreme are settings designed specifically for the provision of health care services such as a skilled nursing facility, or nursing home, providing "high levels of care" to residents including all meals, assistance with daily activities and 24-hour nursing care.

### A Continuum of Care

The design of different types of environments is based on the provision of a given *level of care*

to the individuals residing within the setting. It is believed that when a greater number of optional levels of care are made available to members of the community, the more likely the match between person and environment becomes. Within some community settings the choice of housing options for old people may be



\*Lower levels of care refer to the common instance where fewer staff and fewer services are available

**CONTINUUM OF CARE:  
TYPICAL PATTERNS OF MOVEMENT WHEN ALL LEVELS OF CARE ARE AVAILABLE**

Services**	Type of Institution	Brief Description
High	Acute Care Hospital Rehabilitation Hospital	Diagnosis, Medical Supervision, Surgery (see above + Therapy Emphasis)
Moderately High	Hospice	Care for Terminally Ill Cancer Patient
	Skilled Nursing Facility (also: SNF, Convalescent Home, Rest Home)	Registered Nurse 24 hours/day; about 2.5 hrs/patient day of nursing care; all meals; housekeeping; activities
Moderate	Intermediate Care (also: Nursing Home, Rest Home, ICF)	Licensed Practical Nurse (requirements vary) supervises; about 1.5 hours/patient day of nursing care
Moderate-Low	Homes for the Aged (also: Adult Homes; Personal Care Homes)	Meals; housekeeping; personal assistance, may be a nursing staff available (not generally required)
	Congregate Care Apartments	Apartment residences with central meals available or accessible; may be emergency or coordinating staff available
	Apartments for Disabled	Like Congregate Care Apartments; typically more architecturally accessible
Very Low	Group Homes	Smaller residences for adults and/or children; emphasis on minimal staff intervention in adult residences
	Shared Housing/Small Group Cooperative Housing/Self-help housing	Clusters of 8-30 older people in residential style community-based housing; tasks may be shared by occupants and/or supplemented by community agencies.
	Specialty Built Apartments (also: Apartments for Elderly; High Rise for Elderly; Garden Apartments; Retirement Housing)	Apartment residences, typically age and often income prerequisites; may include government rent support for some or all apartments; may be no meal service

**Note:** The overwhelming majority (70%) of all older people reside in homes which they own. NOT in institutions, apartments or shared living arrangements. There are exceptions to the amount or degree of care in individual cases. Multi-level care or retirement campuses typically offer two or more of these types of facilities.

\*\*Number and variety of services

Right: Table and Diagram developed by Lorraine Hiatt presenting the full range of options ideally available to the elderly. Source: *Progressive Architecture*, August 1981.

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very limited. On the other hand, if a community contains a full range of optional settings, from those providing a very low level of services to others providing high levels, the community is considered to possess a *Continuum of Care* for older people.

### **Institutional Settings**

The concept of levels of care is loosely defined in relationship to the many varieties of residential settings available. In the case of health care facilities, however, there has been an institutionalization of the concept. The design of facilities and the description of people living within such settings (referred to as patients) is directly related to the intensity of care provided. State and Federal regulations involving the licensure and reimbursement of costs associated with long-term care facilities require that "patients" be "leveled" according to standardized assessment tools and cared for only within facilities licensed to provide the level of care determined necessary. Often, patients, as well as, facilities are referred to by the level of care provided.

Though regulations vary from state to state, long-term care facilities are typically divided into the following categories (excerpted from the Commonwealth of Massachusetts, Department of Public Health Regulations 1984):

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Levels I and II - Skilled nursing facilities (SNF), provide the highest levels of care available outside of an acute hospital setting. Services include continuous skilled nursing care in addition to restorative and therapeutic services for patients who show potential for improvement or restoration to a stabilized condition or who have a deteriorating condition requiring skilled care.

Level III -Intermediate care facilities (ICF), provide routine nursing services, periodic availability of skilled nursing services, and restorative and therapeutic services. . . for patients whose condition has stabilized to the point that they need only supportive nursing care.

Level IV - Personal care facilities or Homes for the Aged, provide protective supervision. . . for residents who do not routinely require nursing or other medically related services.

### **Multi-Level Facilities**

One problem associated with the design of physical settings according to the health care requirements of residents is the necessity of relocating individuals with subsequent declines (or improvements) in their health status.

As a response to these potentially negative aspects of relocation trauma, *multi-level*



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*facilities*, that is, long-term care facilities which provide two or more levels of care within one facility have become increasingly popular. Such facilities are beneficial because they minimize the effects of relocation by only requiring a move from one part of the facility to another, rather than from one facility to another (Fisher 1978). In this way, people may remain within a setting to which they have become accustomed and are not required to move, simply because the next higher (or lower) levels of care are not provided where they are.

### **Service Enriched Housing**

As the population has aged the need for services provided within independent housing settings has greatly increased. This need is especially acute and highly visible within age-segregated housing settings. In response to these changing service needs of older people additional housing models have been developed which include varying levels of services.

The development of moderately service-rich settings, known as "congregate housing" was intended to provide an intermediate level to the continuum of care, between that of independent housing and health care facilities. This intermediate level was designed for those older people in need of some assistance with daily activities and personal care but, who are not in

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need of 24-hour nursing care. By moving people in need of these additional support services into congregate housing which is designed especially to accomodate such needs a match between setting and need can be maintained.

This conceptual model of an intermediate level of service rich housing has not been completely realized. In reality there has been virtually no movement from independent to congregate housing. Services are typically limited to a meals program providing one meal a day, five days a week and some form of emergency access system. Admissions rules to most congregate settings limit admission to those who are substantially independent and capable of caring for themselves without outside assistance.

Still, there has been a marked increase in the number of services being brought into both independent and congregate housing sites for those residents who have aged within their current setting and now require a greater range of services.

A longitudinal study of two housing projects (Lawton 1980) and a subsequent study of an additional five settings (Lawton 1985), found that services were progressively added in what is termed an "accomodating model" of housing. In contrast to the "constant model" which

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attempts to maintain the original character of the population through transfers to other settings, the "accomodating model" has allowed the increased infusion of services to residents as their service needs increased. The provision of on-site meals; assistance with housework, laundry and shopping; personal and health care; and transportation programs, have reached the point where as one administrator of a large housing development stated, "in practice, we now provide all but skilled nursing care in our facility."

#### **The Blurring of the Boundaries**

The continual accomodation of services within housing settings has caused a blurring of the boundaries between housing and health care settings. There no longer appear to be clear definitions between levels within the continuum of care except in the institutional models of care. The advent of community based Home Care and Personal Care services allows older people to remain within varied housing settings, thus avoiding the need for institutional care much longer. In large part, however, independent and congregate housing developments, as well as the associated community based services, have been targeted only towards low and moderate income elderly.

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### **Continuing Care Retirement Communities**

The lack of alternative settings providing home and health care services within residential environments for moderate and higher income elderly populations is now being approached through the development of Continuing Care Retirement Communities (CCRC).

These communities are designed to provide lifetime residence to older people. This normally includes the provision of an independent living unit, a variety of in-home services, as well as long-term health care, often provided by an on-site skilled nursing facility. Many such communities also include a wide array of social and recreational spaces such as a restaurant, swimming pool, library, game rooms and lounges. Additional facilities may include a grocery store, bank, beauty/barber shop, and newsstand, making the CCRC a microcosm of the larger community, with most of the services needed for its residents' daily living provided on-site. (Winklevoss 1984).

This provision of a full continuum within one setting is not limited to new developments. In increasing numbers, housing projects for independent living are providing additional services to residents and in many cases either constructing adjoining long-term care facilities or forming contractual arrangements with nearby nursing homes for the utilization of

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nursing beds for their residents. From the other direction existing nursing homes are developing independent housing units in order to "build-in" a market for health care services.

With all services and facilities provided within a single development, the entire continuum of care has been totally consolidated under a single roof.

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## The Neighborhood Concept

The idea of the neighborhood as a unit of community organization is a commonly accepted notion. Though there are no clear definitions of what constitutes a neighborhood, three features are prominent in attempting to describe just what constitutes a neighborhood. These three features are the physical structure, social construction and functional uses that combine to create the sense of community referred to as a neighborhood.

Neighborhoods are often considered as discrete, defineable. Particular areas within communities often carry names of some historical precedence. These names appear on maps and are typically thought of as physically bounded areas. This may be the case with some neighborhood areas that are contained by strongly defined boundary conditions such as rivers or busy streets. But most neighborhoods, are not clearly defined as to shape and dimension and boundaries are more often than not ill-defined and changeable.

The *social construction* of neighborhoods which is based on the networks and interactions between people has three separate aspects. These are the social interactions, political frameworks and cognitive images which define the neighborhood unit as a social entity. The

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idea of neighborhoods as locations in which *social interaction* and acquaintances are formed through face-to-face contact is based on the analogy of small town social structures. Through the daily contact and the mutual assistance of many generations of families a sense of community is formed. More prevalent today, however, is the *political framework* of neighborhoods where residents join together against a common threat to the area in which they live. This form of neighborhood organization is often short-lived and subsides once the threat is gone and people once again go their own way until another cause arises. The third aspect involves socially constructed, *cognitive definitions* of local areas. This model which consists of the collective and comparable mental images of a community's residents was introduced by Kevin Lynch (1960). Cognitive images of a sampling of individuals are mapped and aggregated to create what may be considered a consensus definition of a neighborhood, thus forming a social construct of the physical form of a neighborhood.

The *functional use* concept of neighborhoods can be observed in the traditional urban planning concept in which residential areas are grouped around the public elementary school. This structure of well defined, pedestrian oriented areas with little through traffic was seen as an ideal environment for

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school aged children and became the model for many cities and towns throughout the world. This construction of physical planning units based on one particular type of function or service, however, ignores the fact that not all elements and functions within a neighborhood have the same spatial requirements. Additionally, there is no consensus that social networks are, or should be tied to any particular functional or physical setting.

The concept of neighborhood units in the design of cities has been criticized as a planning illusion and also as merely a convenient physical element created by planning professionals to ease the design of communities. It is argued that people's interests are no longer oriented to local areas. Social contacts and friendships are tied to old friends and co-workers and are widely scattered across the community. With a highly mobile society, shopping, workplaces and schools need not be located within pedestrian walking distances and are often aggregated on regional levels.

Even though the neighborhood as a planning unit has been discredited the concept persists. When people are asked where they live the most common response will be the name of a neighborhood. The cognitive images of neighborhoods are often surprisingly similar



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when compared over a sampling of local residents within a community.

In the case of older people, the idea of the neighborhood as a planning concept has great appeal. As the population grows older and less mobile the need for commercial and service functions within convenient walking distances may be critical to the maintenance of people in an independent way of living. The familiarity of the neighborhood environment in which people have lived for many years can provide a great sense of stability in what may otherwise be a time of many changes. Changes related to the process of aging, such as, in employment status, family relationships, friendships and physical health.

This study will primarily be concerned with the implications that physical patterns may have on the provision of services to community residents. This is not an in-depth analysis of facilities or programs designed specifically for older people though a review of these elements will take place. Instead, this study is concerned with the inter-relationship of elements within the framework of (sub)urban communities.

Research will center on two aspects:

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- To investigate the use of the neighborhood concept as an appropriate unit for the effective planning of social and health care services for older people.
  - To determine what physical and urban framework for service settings is needed to assist elders in the maintenance of their preferred living situation.

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## **2 Case Study**

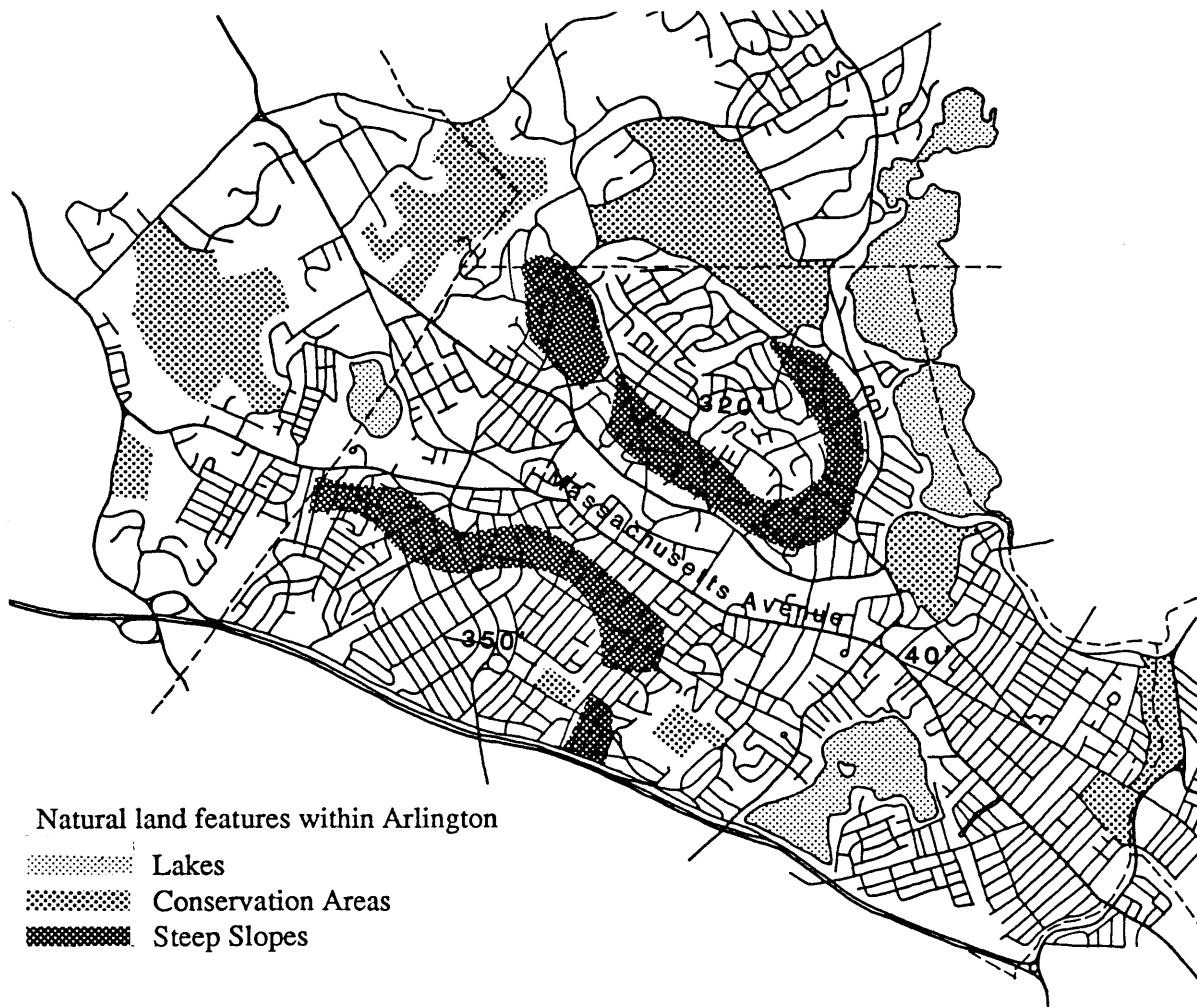
### **The Community**

The Town of Arlington, Massachusetts will be utilized as a case study in determining the usefulness of the neighborhood concept in the planning of service settings for older people. Arlington was chosen for this case study due to its characterization as an inner-ring suburb of Boston. With a population of 48,219 people in a relatively compact and well defined area the town proved nearly ideal for this case study analysis.

The town is located approximately five miles west and north of Boston's central business district between the City of Cambridge on the east and the Town of Lexington on the west. Arlington's development occurred largely along Massachusetts Avenue, a major commercial street which bisects the city lengthwise on its trip from Boston to Lexington. Nearly all commercial activity occurs along this major transportation route. Pleasant Avenue, another arterial street nearly bisects the city crosswise in a northeasterly direction, intersecting Massachusetts Avenue within Arlington Center, the major commercial, cultural and political center of town.

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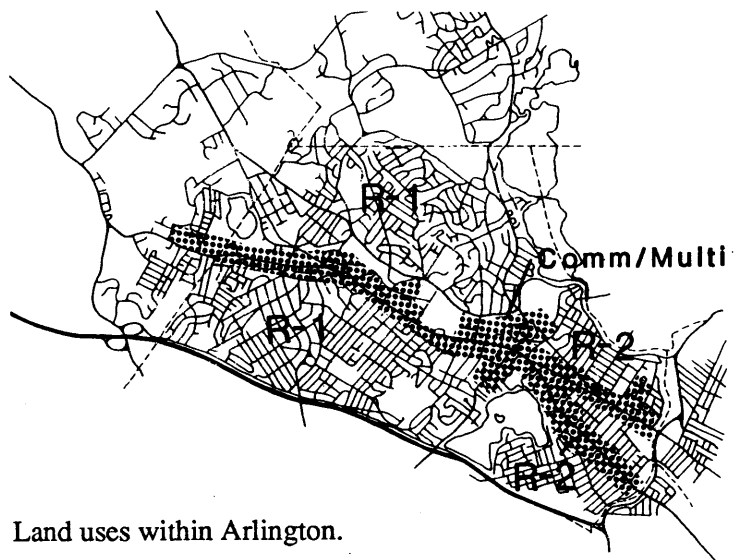
Several *natural features* are evident in the landscape which provide strong boundaries both within the town and between Arlington and surrounding communities. Alewife Brook and Mystic Lakes define the town's boundary to Cambridge, Somerville and Medford to the east. On the south, Route 2, a limited access highway separates Arlington from the Town of Belmont. Boundaries with Winchester to the north and Lexington to the west are less clearly defined, though natural conservation areas interrupt



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development in both directions. The town itself is dominated by two hills, one on either side of Massachusetts Avenue in the western part of town. These hills rise nearly three hundred feet from their base at Mass. Ave. The eastern portion of the town is relatively flat and contains a large body of water named Spy Pond.

*Land use* within the town is relatively well defined within geographic areas. As previously stated, Massachusetts Avenue is the major commercial street. It is also along Massachusetts Avenue that most high density residential development in the form of apartment buildings occurs. Lower density housing typically takes on two different configurations. In the eastern part of town, between Cambridge and Arlington Center, the dominant housing type is two family dwellings.



Land uses within Arlington.

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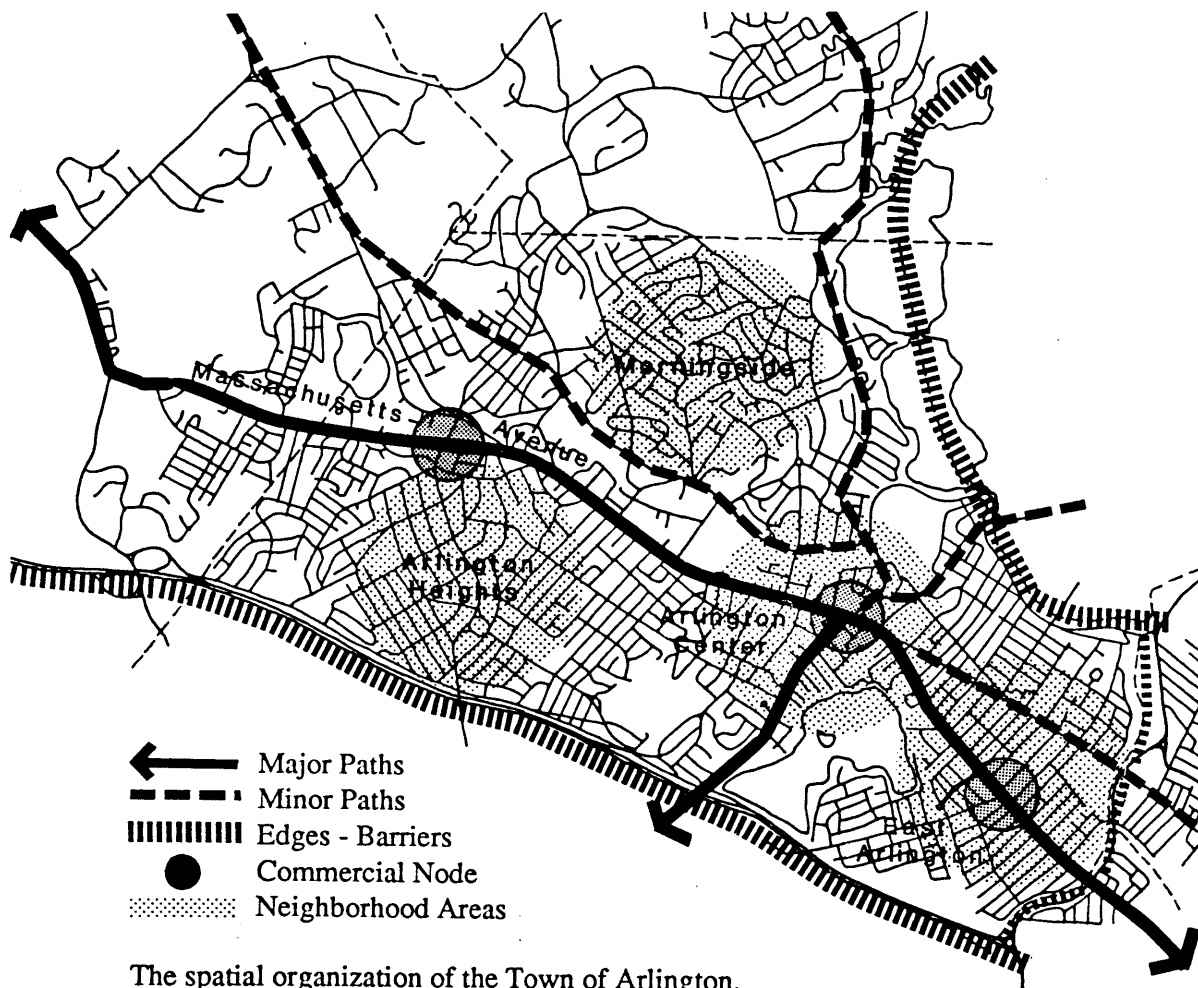
This housing creates a consistant texture throughout the flat areas of town. In the western part of town, at a further distance from Boston, housing development changes to a predominance of single family homes. This housing type occurs across both hillsides and is interrupted only by the higher density along Massachusetts Avenue.

### **Definition of Neighborhoods**

Mappings of the cognitive images of neighborhoods has been previously investigated as a means for the establishment of service delivery locations for older people (Regnier 1973). This research was based on the assumption that services located within the perceived cognitive boundaries of a consensus neighborhood have the greatest accessibility and potential for use. It was also found that land-use, topography and traffic patterns can be useful in narrowing the scale of search due to the congruence of these ecological variables with cognitive boundaries.

This congruence of natural features and mental images of local districts was utilized as a preliminary definition of neighborhoods within the Town of Arlington. In addition, the cognitive images of the environment developed by the researcher, as well as informal surveys of local residents' definitions of neighborhood areas, was used.

Through these methods the town was divided into four neighborhoods. These neighborhoods are either strongly bounded, as in the case of Morningside located on the northern hill, or loosely bounded and overlapping, as with Arlington Center and East Arlington. Arlington Heights located on the southern hill is the fourth neighborhood defined in this way. A fifth part of town not defined as a discrete neighborhood is located along and



The spatial organization of the Town of Arlington.

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approximately two blocks to either side of Massachusetts Avenue, west of Arlington Center and extending to the Lexington town line. Most residents would consider this to be a part of Arlington Heights, which it is by name. This area, however, varies greatly from the residential areas on top of the hill. The area along Massachusetts Avenue predominantly commercial and higher density in character is separated from the single family areas by a steep hillside. Hills may be seen as barriers to travel by older people, thus limiting access between these areas. For this reason, in addition to the different character of land use, the area along Massachusetts Avenue is not considered a part of the Arlington Heights neighborhood and will be designated as the Massachusetts Avenue Area.

The neighborhood areas which will be utilized throughout the rest of the case study have now been defined. It is these neighborhood units which will be investigated as to their potential usefulness in the planning and provision of services to older populations.

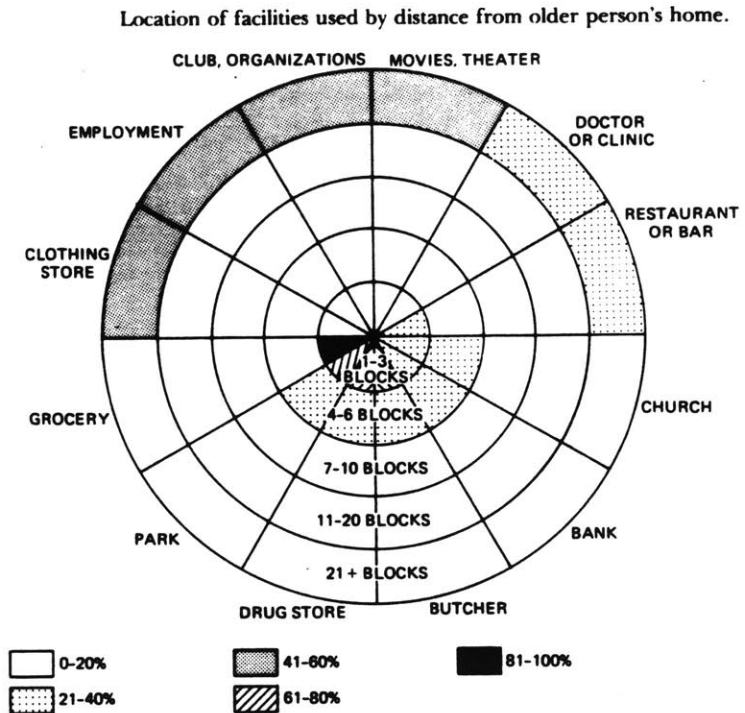


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### **Use Neighborhood**

A wide variety of commercial services are typically available within most neighborhood areas. Several studies have identified those commercial services utilized by older people living within independent housing settings in terms of their frequency of use and the critical distances which minimize non-use of such services (Newcomer 1974, Cantor 1975, Howell 1980). These criteria are typically used to define what is called the *Use Neighborhood* surrounding a particular building or site. A Use Neighborhood can be defined as the area in which those neighborhood commercial services most often utilized by residents are located. The size of Use Neighborhoods may vary considerably depending upon the characteristics of the population group being studied. In the case of older people Use Neighborhoods are typically based on pedestrian travel. In addition, the use neighborhood is variable for different service needs, as the distance one is willing to travel for any given service is based on the frequency of use for that particular service and the perceived importance of the service to the individual. In terms of commercial services, neighborhoods that contain a large number of available services are considered to be service-rich while those with few services are service-poor (Howell 1980).

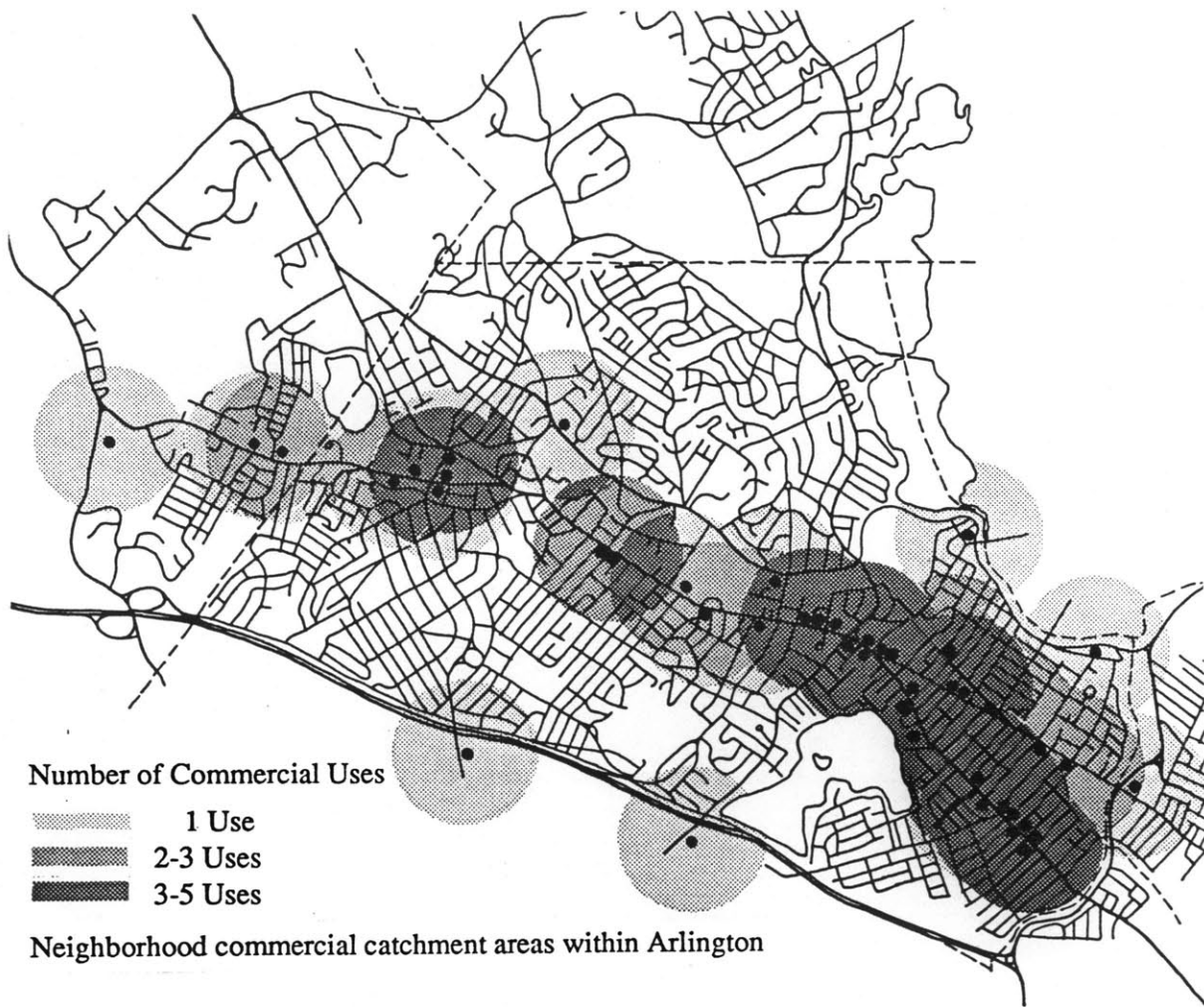
Right: This diagram is based on data from a survey of older people within the city of New York. Source: Cantor 1975.



The concept of Use Neighborhoods was utilized in the case study of Arlington in a slightly modified form. Since this study involves looking at neighborhoods in general as service settings for older people, defining the Use Neighborhood for a particular site was not of interest. Of importance to this study is locating those neighborhoods (as previously defined, ie: East Arlington, Arlington Center, Morningside and Arlington Heights) which are either service-rich or service-poor.

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A windshield survey of Arlington was conducted in order to map locations of neighborhood services most likely to be utilized by older people (as defined by Newcomer, Cantor and Howell). The services mapped include: grocery stores and supermarkets; drugstores; beauty/barber shops; banks (for cashing checks) and laundry services. All parts of Arlington, as well as, areas within one half mile of the city boundary were mapped in this manner. A catchment area with a  $\frac{3}{8}$  mile



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radius (approximately 6 blocks, a critical distance as defined by Newcomer and Cantor) was then traced around each mapped service site. In this way, the community is divided into areas which either fall inside or outside of the critical pedestrian travel distances of older people.

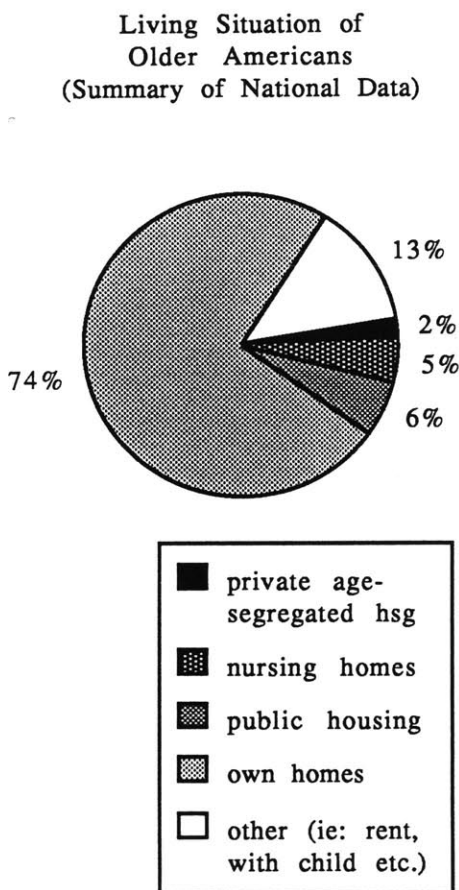
This examination revealed interesting though somewhat predictable results. Those areas adjacent to Massachusetts Avenue contained the greatest number of commercial services. Often all five service types are located in close proximity to one another with overlapped service areas making this a very service-rich area. This pattern covers much of East Arlington and Arlington Center. To a lesser degree the commercial node along Massachusetts Avenue in Arlington Heights has the same characteristics. Not surprisingly, at the other extreme the single family neighborhoods of Morningside and Arlington Heights are very service-poor. In many instances large portions of these neighborhoods contain no commercial services within the defined pedestrian travel distances.

Older people, as well as others dependent upon pedestrian travel, living in service-poor areas might experience difficulties in the maintenance of an independent life style.

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## Where Older People Live

Contrary to popular belief, the majority of people over 65 years of age are not fleeing their homes and neighborhoods to move into age-segregated retirement communities. Instead, evidence suggests that old people are staying within the single family homes and neighborhoods in which they have lived and raised their families. Homeownership among people over the age of 65 is exceeded only by those 45-64 years old. The trend of high levels of home ownership by older people is expected to continue, and increase, well into the next decade when it is estimated that 80% of all old people will be living in their own owned homes (Special Committee on Aging, U.S. Senate 1986).



Contributing to this trend is the low mobility rates exhibited by older people. On the average only 2.2% of all homeowners over the age of 65 change residence in any given year and 61% of those that do move remain within the same county of previous residence (U.S. Bureau of the Census). Older people generally prefer to stay in the cities and neighborhoods with which they are familiar. Studies have documented the tendency for older people to maintain their familiar living situation even when life-events would potentially trigger a move (Byerts 1981, Howell 1981).

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These factors have combined to create a situation where older people are *Aging in Place*. Aging in place refers to the phenomenon of older householders remaining within the same homes they occupied during their middle-aged years. It is believed that residential segregation of older people will decline over time due to the aging in place of suburban residents.

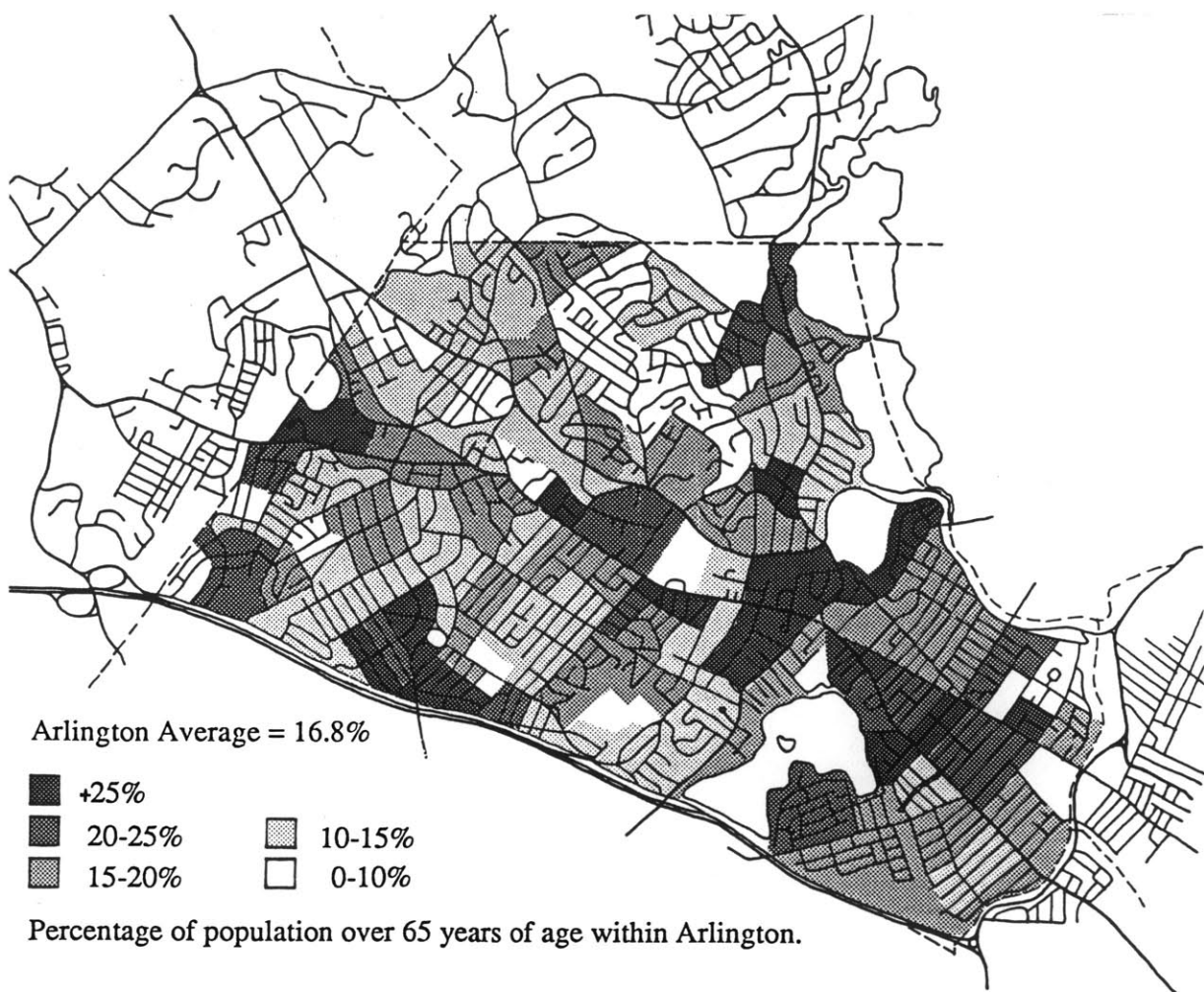
### **Residential Integration**

There have already been substantial increases in the population of people older than 65 living in suburban communities and the numbers are increasing steadily. The average population of older people in suburban communities is now 11.8%. These trends suggests that at least in terms of residential distribution, persons over the age of 65 are becoming more similar to the rest of the adult population (Tierney 1987).

These trends are confirmed in the case of Arlington. There are 8032 people 65 years or older living in Arlington. This is equal to 16.8% of the total population, substantially higher than the 11.8% nation average within suburban areas. Of the total number of old people 44% are in the category of older-old.

In order to determine the level of segregation of older people in terms of locational distribution within the town an analysis of census data was undertaken. The percentage and total numbers

of people 65 years and older was calculated at the block level for the entire town and mapped in order to determine locational concentrations. High percentages of old people were found through out the community with few areas having concentrations of less than 10%. Highest concentrations were located along Massachusetts Avenue in areas of higher density housing. This is in part attributed to five age-segregated public housing developments which contain 650 individuals.



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Significant numbers of old people were also found within the single-family residential neighborhoods of Arlington Heights and Morningside. Difference were observed however between these two neighborhoods. Whereas Arlington Heights contained several areas with densities in excess of 25% concentrations of this magnitude were not observed in Morningside. It is the researchers guess that Morningside, an area with newer housing will soon experience increased densities of older people due the the aging in place of a slightly younger population which moved into this neighborhood when the housing stock was first constructed.

The actual populations of people 65 years and older was also calculated for each of the five previously determined neighborhoods as follows:

• East Arlington	2400
• Arlington Center	1600
• Arlington Heights	1300
• Morningside	1100
• <u>Mass. Ave. Area</u>	<u>1600</u>
<b>Total</b>	<b>8000</b>

This population analysis shows evidence that significant levels of aging in place have occurred in the Town of Arlington within all its neighborhood areas and that this trend is likely to continue as the population of people 65 years and older increases into the future.



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## **Service Needs of Older People**

There are two components of need which must be investigated in order to determine the viability of planning long-term care services on a neighborhood basis. These are the types and the magnitude of services required by older people. Starting from a hypothetical base of 100 individuals 65 years of age or older, it is possible to estimate the percentage of people requiring either institutional or non-institutional care.

Institutional care will be defined as care received within either skilled nursing facilities (levels I & II) or intermediate care facilities (level III). Personal care facilities are specifically not included in the analysis due to their nature of providing strictly supervisory, non-nursing care.

Non-institutional care will include care received within the community setting including formal and informal assistance with daily activities, as well as, health care assistance received either in the home or at a community based setting.

### **Institutional Care**

Most of the literature to date has focused on nursing home utilization to the exclusion of other long-term care service utilization. It has been estimated that approximately 5% of the population over the age of 65 are living in

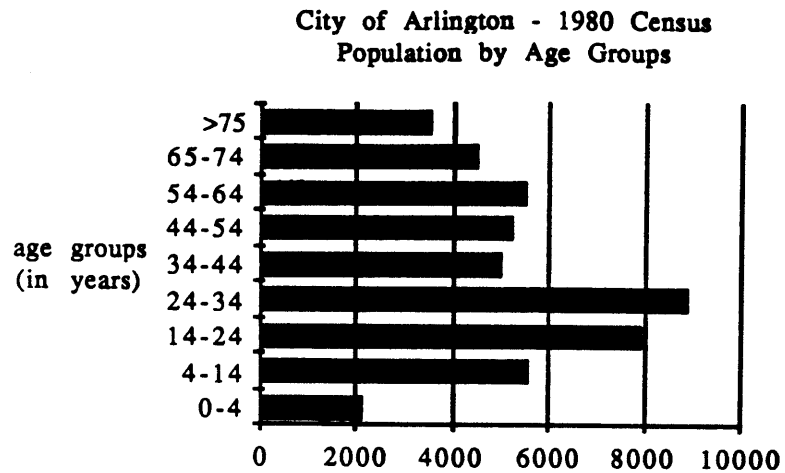
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nursing homes at any one time (Manton and Soldo 1984). Studies also suggest that nursing home utilization increases with increased age. For those between the ages of 65 and 74 the likelihood of institutionalization is only 2% but for those over the age of 75 this rate increases to 7%. The Commonwealth of Massachusetts, Office of Health Policy has developed its own guidelines for determining the need for additional nursing home beds. Guidelines adopted August 23, 1983 use the following formulas:

	<u>Age 75+</u>	<u>Age 65-74</u>
<i>Level I/II</i>	58.3 beds/1,000	8.8 beds/1,000
<i>Level III</i>	55.3 beds/1,000	15.5 beds/1,000

In other words, 11.36% of all people over 75 and 2.43% of those between 65 and 74 years of age will at any given point in time require long-term care services within an institutional setting.

As indicated earlier the population of older people within the Town of Arlington contains a significant number of individuals within the old-old age group. Of all individuals over the age of 65, 56% are between the ages of 65 and 74 while 44% are 75 years of age and older. Considering the increased incidence of institutionalization and need for long-term care



services of all types as people age (Wingard 1987), this high percentage of old-old individuals can greatly influence the rules of thumb used in long-term care service planning when using population data which does not separate out this older-old group.

As indicated earlier the prevalence rate for the institutionalization of people 65 years of age and older is 5%. How does this compare to the anticipated rate for people living within the Town of Arlington? Using dis-aggregated population data for older people in Arlington (ie: 56%, 65-74 years of age and 44%, 75 and older) one comes up with a bed need equaling 6.36% of all people 65 years and older. Given an older population of 8032 individuals the total bed need calculation for Arlington equals 510 beds compared to 402 using the 5% national rate, an increase of 27%.

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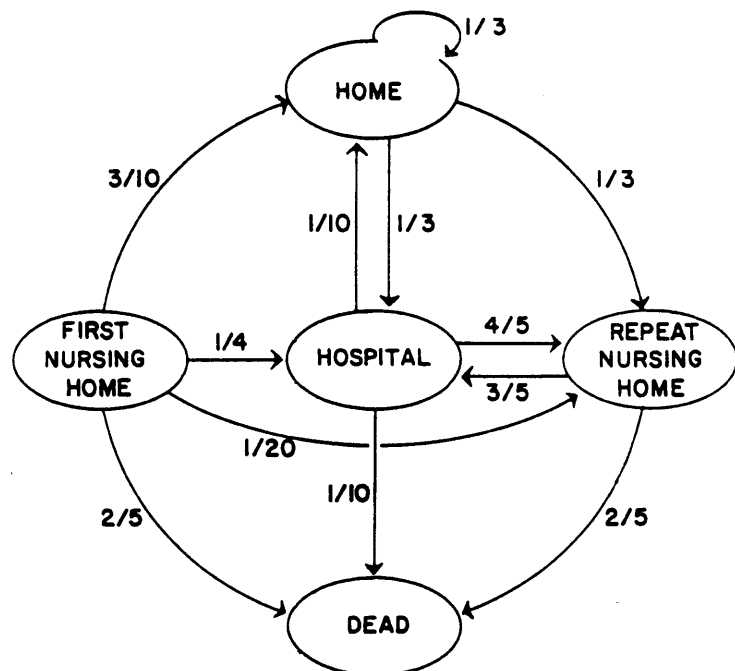
A comparison of the calculated bed need to the total supply of 122 beds (found in a survey of existing services within Arlington) demonstrates a shortfall of 388 nursing home beds within the Town. This shortfall indicates that over 75% of all older residents of Arlington requiring nursing home placement must find care within a different community or are cared for at home.

It should be noted that the population of older people utilizing nursing facilities as determined by these formulae is not a static population. Cross-sectional data of this sort is merely representative of the total number of people using a resource at any one time. It gives no indication as to the highly varied movement which takes place between nursing facilities, hospitals and the community.

A study which followed persons admitted to nursing homes demonstrates the dynamic nature of these movements over a two year period (Lewis 1985). Approximately 40% of those discharged from nursing homes either went home immediately (30%) or after an intermediate stay in the hospital (10%). This movement is highly indicative of the nature of nursing home resident movement. The implication of this for long-term and continuum of care planning is that nursing homes are

currently serving the community at single points in time. With outreach services preceding and following institutionalization, it is possible that facilities could penetrate an untapped market within their local communities.

Right: Movement characteristics of first time nursing home patients. Source: Lewis 1985.



Transfer patterns — nursing home patients. The fractions indicate the approximate proportion of patients moving from one status to another. For example, about three-tenths of first admissions went home on discharge, a fourth went to the hospital, a twentieth went to another nursing home, and two-fifths died. Of those going home, a third stayed at home, a third went to the hospital and a third went back to a nursing home.

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### **Non-institutional Care**

Once nursing home residents have been subtracted from the total population of people 65 or older, there remains 95% who live within the general community. Of these, it is estimated that 75% have no limitations to daily activities and are capable of independent living on a daily basis (National Center for Health Statistics, 1984). The remaining portion of the population (ie: 20%), however, has some degree of disability or limitation in activities which require some care services. This care could either be short-term recuperative or intermittent, as well as continuous and long-term in nature.

A commonly used measure of disability in older people is the number of ADL and IADL impairments. ADL's, *Activities of Daily Living*, measures include: bathing, eating, dressing, toileting, continence, transferring and mobility. These are activities which are essential for the continuation of life. IADL's, *Instrumental Activities of Daily Living* are those activities which support the activities of living and include: meal preparation, shopping, managing money, housework, laundry, taking medicine, transportation, use of telephone and mobility outside of the home.

### **Informal Care**

It is estimated that the number of older people receiving informal care within the community

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is 70% (Special Report on Aging). This care is typically provided by a spouse, offspring or other relative. A study of people recently admitted to nursing homes found that the largest percentage of former care givers were the patients own children, providing care in 65% of the cases. Spouses helped 25% and other kin, 30% (Smallegan 1985). It must be remembered that this data measures care to individuals immediately prior to institutionalization. In other words, these care givers were predominantly providing care to elderly women who were living alone. This is derived from the facts that there are three times more women living within nursing homes than men and that spouses are typically the care givers in the situation when both husband and wife are still living.

Given increases in life-span for both men and women the situation will increasingly occur where a spouse who is providing informal care will require services themselves. Beyond that, as more people live into their 80's and 90's the possibility that their children will themselves occupy the ranks of the elderly with service needs of their own increases dramatically.

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### **Formal Community Based Care**

Formal care services within the community are typically broken into two categories, Health care and Social Services. Health care services are those services which involve assistance with ADL skills whereas social services typically deal with IADL skills.

The Commonwealth of Massachusetts, Executive Office of Elder Affairs estimates that 6% of all elderly people in the state receive formal care through state sponsored Home Care programs. These programs include assistance with any of following Social Services:

- Case Management
- Homemaker Services
- Personal Care
- Chore Services
- Companionship Services
- Social Day Care
- Home Delivered Meals
- Laundry Services
- Transportation

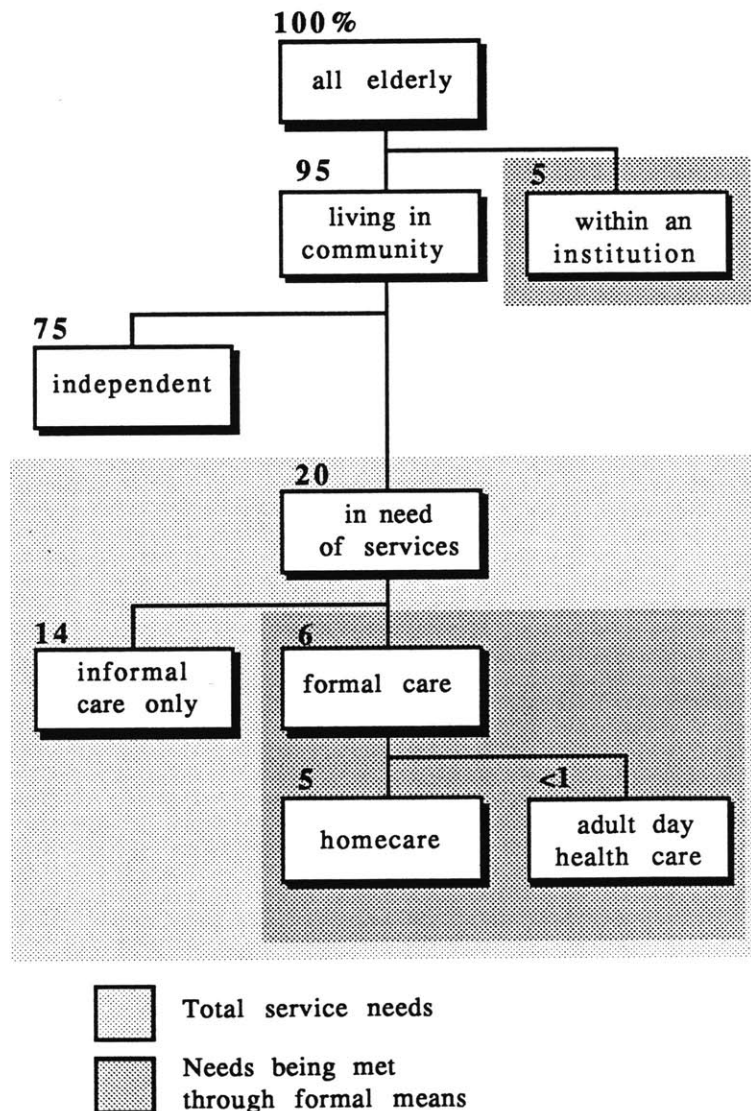
Health Care services are provided through a combination of agencies and can include:

- Home Health Aides
- Adult Day Health Programs

These services are administered through the Department of Public Welfare because Medicaid and Medicare reimbursements will cover many of the costs involved with health care services.



Adult Day Health Care Programs provide health care services similar to those received in a nursing home, but only as a daytime service. Day Health Care Programs are designed as a



Service Needs of Population 65 years and Older by % of Current Use (Summary of State and National Data)

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means for supporting informal care givers, as well as, to provide medical services to those in need of such services on an intermittent basis.

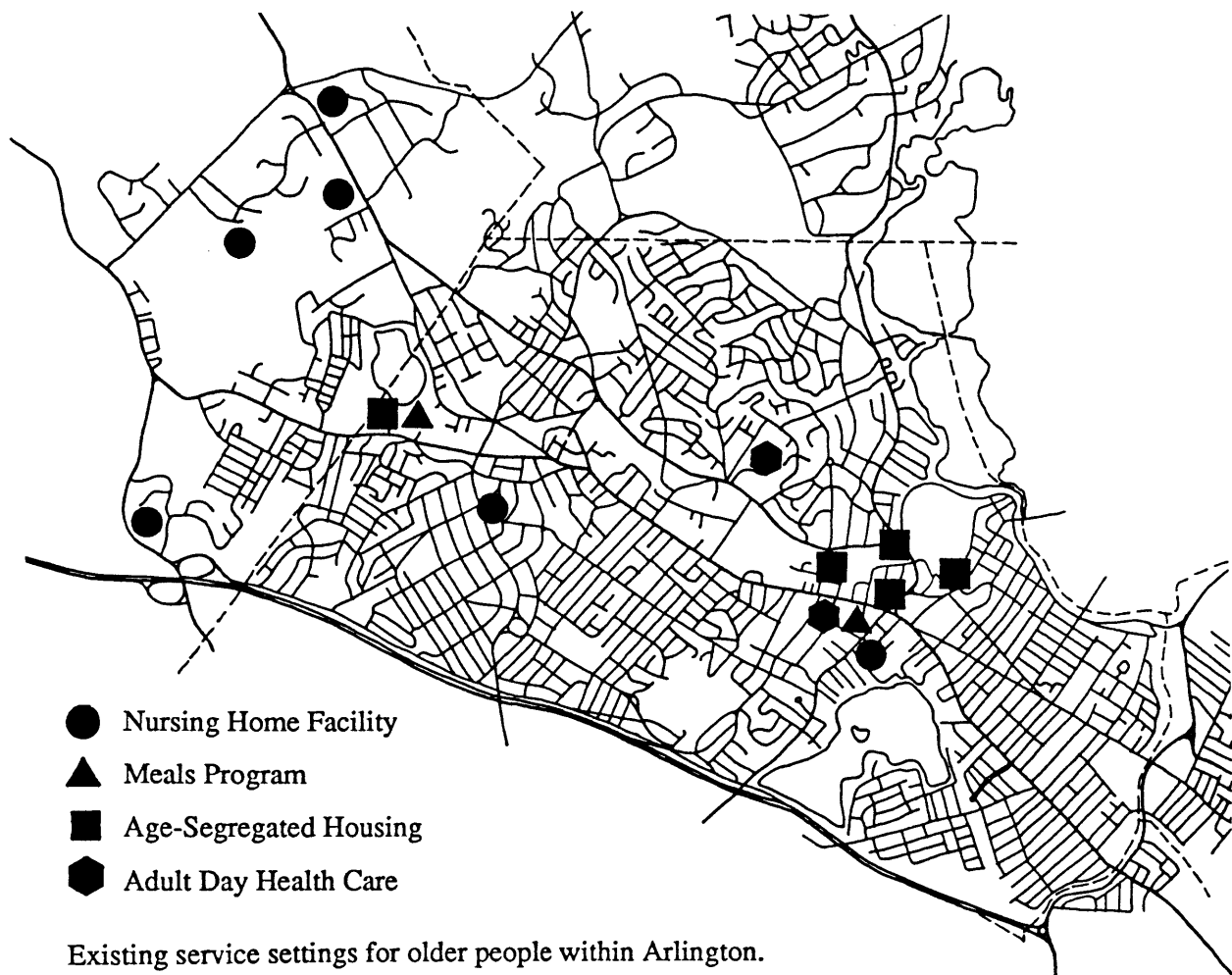
The Commonwealth of Massachusetts, Department of Public Welfare estimates a demand for Adult Day Health Care Service of approximately 1% of the total population of older people within a given area.

The diagram on the preceding page summarizes the magnitude of current service utilization based on the previous survey of state and national data. These percentages will be utilized later in the study to determine the needs and potential market for various services within defined neighborhood settings.

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## Existing Services in Arlington

A survey of services and housing projects designed specifically for older people within the Town of Arlington was undertaken in order to ascertain the types and levels of services currently available. Both public and private service providers are included in the survey as an attempt to document all available sources of assistance to older people within the town.



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### **Age-segregated Housing**

There are five public housing projects in the town designed specifically for older people. These five projects contain a total of 600 apartment units serving approximately 650 people, or 6% of the age eligible population. This compares closely to the overall national percentage of people over the age of 65 living in some form of publicly assisted housing. It should be noted, however, that age is not the sole eligibility requirement for such housing. As is typical for most publicly assisted housing, income eligibility requirements must also be met. Because of this a much greater percentage of those people both age and income eligible are living in this type of housing.

Four of the housing projects are located within three blocks of Arlington Center, the town's main commercial and governmental center. The fifth, a 200 unit project, is located in the Arlington Heights area near the border of Lexington. All of the projects are well sited within easy pedestrian access to neighborhood commercial facilities and public transportation routes.

### **Meal Programs**

There are two nutrition sites serving the older population of Arlington. The larger of the two is located within the newly opened senior citizens center in a former school building in

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Arlington Center. This site was moved from Winslow Tower, one of the housing projects, when the senior center opened in order to better serve all town residents and to increase activity within the center. The second nutrition site has remained in its original location as a part of the Arlington Heights housing project due to its remote location.

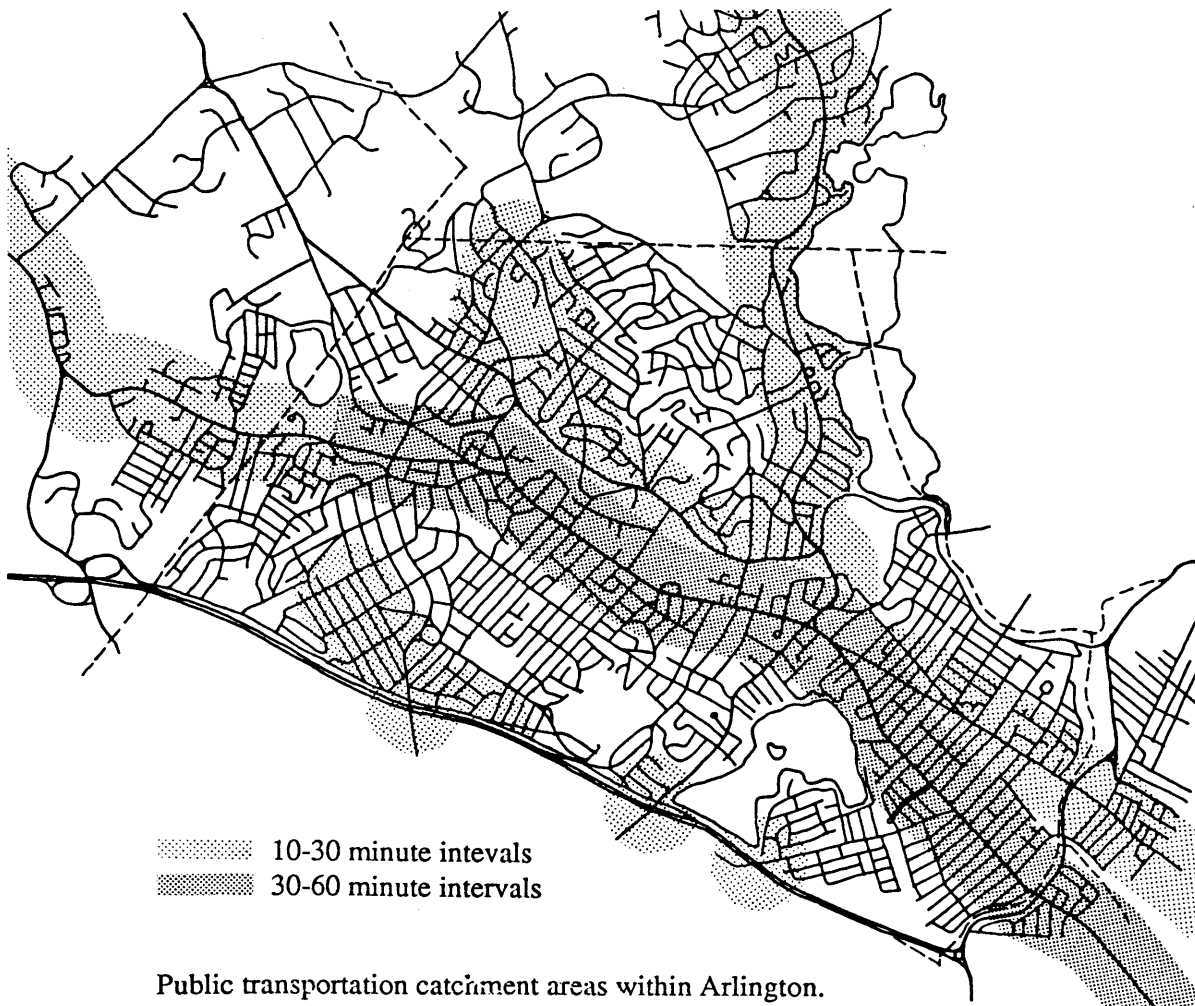
Together, approximately sixty meals per day, five days a week, are served at these sites for a nominal donation of one dollar.

In addition to meals served at the meal sites another one hundred meals are delivered to the homes of older people using two different "meals-on-wheels" programs. Sixty-five of the meals are delivered from the nutrition sites and consist of a cold lunch. The remaining thirty-five are prepared at the Symmes Hospital and include both a hot lunch and cold dinner. This hospital based program, with a mandatory fee of \$19/week, has the capability of preparing "special diet" (ie: low sodium content) meals for those requiring such service. All other meals, both home delivered and on-site which are not prepared at the hospital are contracted with an out-of-town private vendor and trucked into Arlington using special vehicles.

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### Transportation Services

The Town of Arlington is served by a series of public bus routes. Major service is along Massachusetts Avenue. Minor service routes extend into Lexington and Winchester. The neighborhoods of Morningside and Arlington Heights also receive limited service to the top of the hills. Newcomer (1974) determined the critical distance for public transit access as one block. An analysis of bus route catchment areas (in this case two blocks) was conducted to



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determine transit accessibility. Major portions of the Morningside and Arlington Heights neighborhoods are not well served according to this analysis.

Alternative transport is available however. The MBTA runs a Dial-a-Ride program for older people from a garage in Lexington. The Arlington Council on Aging also has two vans capable of transporting wheelchairs. These are used primarily to transport Adult Day Care participants to and from the program.

#### **Home Care Services**

All publicly sponsored homecare and personal care services delivered within the Town of Arlington are coordinated through the Minuteman Homecare Corporation. Minuteman, a state designated homecare agency serves a sixteen community catchment area out of a single office located in Lexington.

At the present time Minuteman coordinates 433 cases serving 454 individuals (5.6% of all elderly) in the Town of Arlington. An over-representation of clients is located within age-segregated public housing projects (33%) which house just 6% of the overall population of older people. It is the researchers opinion that this over-representation is not caused by a greater need within these settings, but rather an increased awareness of the availability of

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such programs and the fact that public housing residents are most likely income qualified for participation. There has been a steady increase in the number of cases since the inception of the program. State-wide this increase has been in excess of 50% since 1980 indicating a growing need for such services.

There are six case managers assigned to the Town of Arlington, each having a case load of approximately seventy cases. After the initial needs assessment, case managers perform follow-up assessments every three months, as well as, supervision of direct care workers.

Actual direct care services are delivered by any of approximately six local provider agencies. Of these provider agencies, two are based in Arlington, two within adjacent communities which are a part of the home care catchment area and two outside of the catchment area. Provider agencies also provide services to over income elders on a private pay basis. Private pay as estimated by one provider accounts for between 30% and 40% of the total number of clients served. Given these figures it is estimated that 9% of all older people in the Town of Arlington are receiving some type of formal care services. As compared to the reported national average of 6% older people in the Town of Arlington are relatively well served.



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### **Visiting Nurses Association**

A Visiting Nurses Association office is located within the Town of Arlington. No data as to the number of cases handled through this agency was available, but it may be safely assumed that most clients of VNA service will also receive services from other sources. Many VNA services are reimbursed as medical expenses required after an acute hospital stay. Services provided by the VNA overlap somewhat with personal care type services offered by the home care agency though VNA services are normally limited to shorter durations.

### **Adult Day Health Care**

A thirty-six slot Adult Day Health Care program operated in association with the Minuteman Home care Corporation is located within the senior center facility in Arlington Center. A total of fifty-eight individuals participate in this program, for an average of three day a week per person. Twenty-eight participants are from the Town of Arlington, the remaining thirty come from surrounding communities as far away as Woburn and Wilmington. Difficulties arise out of the long commute from remote communities. In order to attend a six hour program, those individuals travelling the farthest must often spend from 1 to 1 1/2 hours each way aboard a van while other participants are picked up and dropped off.

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Over 40% of the clients participate on a private pay basis indicating a need for these services from the greater community.

A ten bed respite program has also been established by Symmes Hospital, both as a way of meeting a need for such services in the community and to gain income from under-utilized bed capacity. This program provides both day and overnight health care services for individuals whose normal care givers are unavailable to provide services, either through illness, emergency situations or the need for a break from the demands of daily service provision.

#### **Long-term Care Facilities**

There are two long-term care facilities located within the Town of Arlington. Wellington Manor, three blocks from Arlington Center is a 42-bed Level III nursing facility. Park Avenue Nursing Home, a multi-level facility, near Arlington Heights contains 40 level II beds and 40 level III beds for a total of 80 beds.

Though the 122 beds listed above are the only long-term care facilities within the town boundaries, four addition nursing homes two or three miles inside Lexington are often utilized by individuals from Arlington. Combined these facilities provide another 545 beds of long-term care capacity.

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## Segmentation in Service Delivery

When it comes to the provision of services to older people a wide array of services can normally be found within most communities as demonstrated in the survey of services provided in the Town of Arlington. Services are typically provided either privately or through a variety of publicly-funded service organizations.

Some community services are available to everyone at minimal or no cost, while others are tied to income eligibility guidelines. For example, residents below a certain income level may be eligible for some free services such as respite care while others must pay on a sliding fee basis. Still other "over-income" residents may not qualify for any services at all.

For those in need of services, locating, determining income eligibility and maintaining contact with appropriate service providers can be a bewildering task. There are few clear paths into the service provision system and a great many services are provided by multiple and overlapping service provider groups.

In the case of homemaker services an older person must first contact the local homecare corporation to determine whether they are eligible for services based on income level. If so, a case manager is assigned and services are

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provided. On the other hand if income exceeds eligibility levels a private pay home care provider must be located. Ironically, the private sector service provider found in the community would very likely be the same one that provides services to the homecare corporation on a contract basis. In the case of health care services a different organization must be approached for help. Health care services are reached through an entirely different point of access. From an older person in need of services there is no clear means access into the system. This situation is especially acute in the case of middle class people who generally resist seeking assistance from social service agencies due to the stigma of social service programs as services for the poor.

### **Segmentation in Planning**

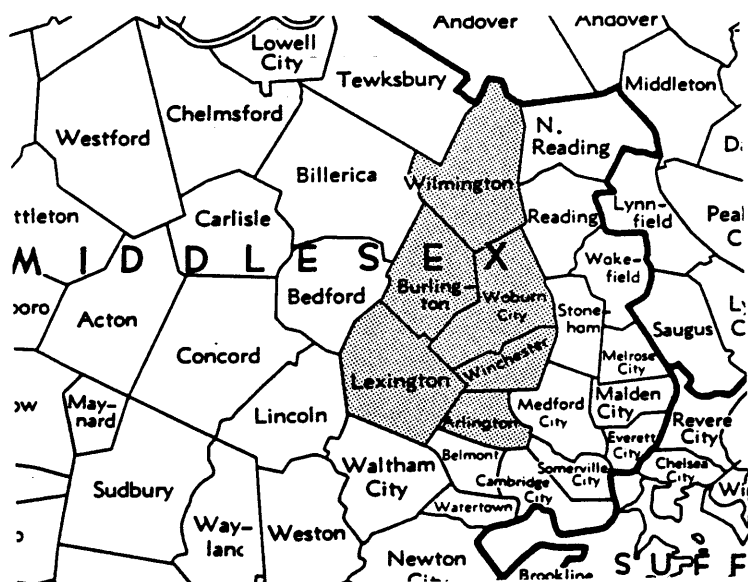
If the provision of services appears fragmented and difficult to understand, the planning of service delivery systems is equally complex. Though essentially targeted at a single population group (ie: people older than 65) the planning of services for older people is also split into the two areas of health and social services.

The planning of health care services is historically geared toward the production, or limitation of bed capacity of medically oriented care facilities within Long-Term Care Services

areas.

*Long-Term Care Service Areas*, or LTCSA's are geographic areas designated by the State Department of Public Health as planning districts for long-term care facilities. All proposed additions to the the number of nursing home beds within the Commonwealth of Massachusetts must proceed through a Determination of Need or D.o.N. application process. The D.o.N. is used to determine whether a need for additional nursing home beds exists within an given LTCSA. This needs determination is based on projections for nursing home utilization according to data from the Department of Public Health's, Division of Health Statistics. If there is a need for nursing home beds within an LTCSA a nursing home

*Right: The Long-Term Care Service Area (LTCSA) which includes the case study town of Arlington. Source: Commonwealth of Massachusetts , Department of Public Health.*



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may be developed anywhere within the boundaries of the Service Area. In some cases development may occur within adjoining Service Areas.

For example, the LTCSA which includes Arlington, our case study community, is comprised of a total of six towns. Any or all of the nursing home beds needed within this Service Area could potentially be placed within a single large scale nursing facility located in any of the six towns. Such a concentration of care facilities within a single area would preclude other communities from constructing nursing homes for its own residents since the bed capacity for the LTCSA is already met.

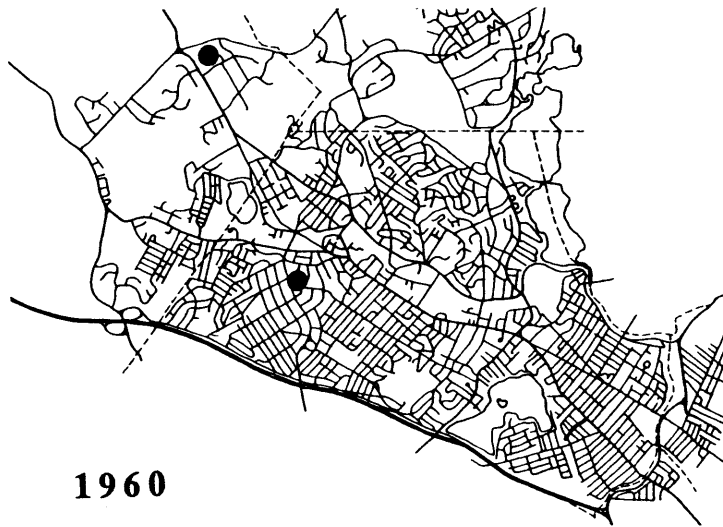
A concentration of nursing facilities within small geographic areas can be observed in the case of Arlington as indicated on the diagrams on the following page which trace the development of nursing homes in Arlington over the last thirty years.

Viewed from this historical perspective, the passage of Medicaid and Medicare legislation in 1966 had a vast impact on the development and physical form of long-term care facilities in this country.

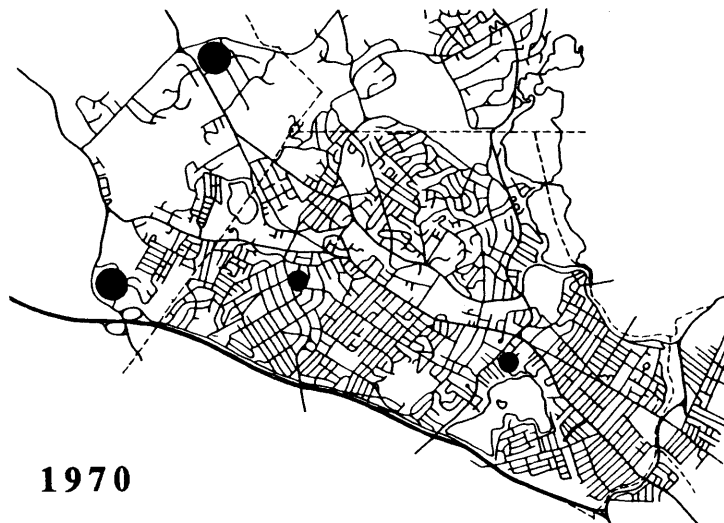
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## ***Development of Nursing Homes in Arlington***

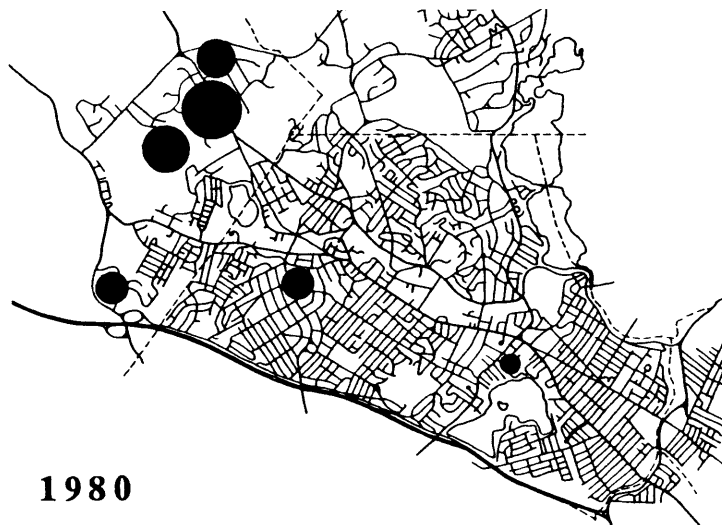
*The first nursing homes serving Arlington and Lexington began as small facilities serving 20 to 30 residents from the local area. Accommodations were contained in large residential structures, after minimal renovation, either in city neighborhood areas or on former rural estates.*



*After the passage of legislation establishing Medicare and Medicaid in 1966 the nursing home industry began a period of rapid growth. Based on a medical model of care, nursing homes increased in size to 80 beds. Newer homes were constructed outside of built-up areas, older homes expanded.*



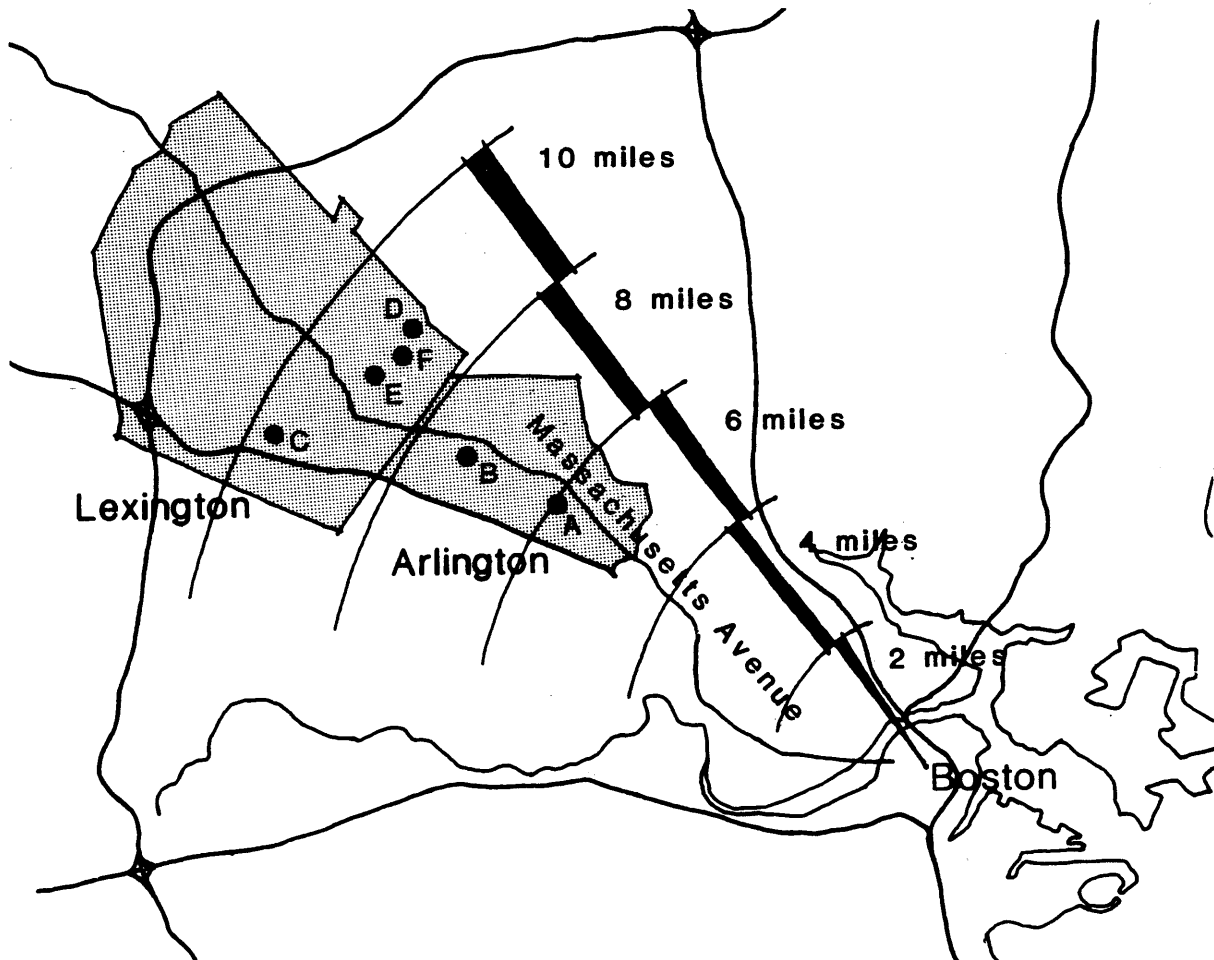
*Expansion continued with the reconstruction of older facilities and the further development of new ones. Major growth occurred in outer areas with the building of large nursing homes (160-200 beds) on relatively inexpensive land in open suburban areas.*



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### Characteristics of Service Settings

In order to better understand the spatial and locational relationships of service settings within the context of the community an analysis of the existing organizational patterns associated with these facilities will be conducted. Those nursing homes previously surveyed as part of the Arlington survey of services will be looked at in terms of the characteristics of Age, Size and Distance from downtown Boston.



Distance of Case Study Nursing Homes from Downtown Boston



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In a study of the locational characteristics of urban elderly it was determined that those elements which contribute to the "city-ness" of an environment make good settings for older people (Carp 1974). One of the attributes used to determine the degree of city-ness surrounding a settings was distance from the central business district of the major city in a regional SMSA. This measure was used in the following analysis of nursing facilities.

As indicated by the following chart there exists a direct correlation of the characteristics concerning the age, size and location of facilities. As facilities are newer in construction they increase in size and are located within less densely populated areas.

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Facility <i>site</i>	Age <i>date</i>	Size <i># beds</i>	Distance <i>miles</i>
A	1962	42	6
B	1972	80	7
C	1965	81	10
D	1966+	104	9
E	1972	158	9
F	1968+	202	9

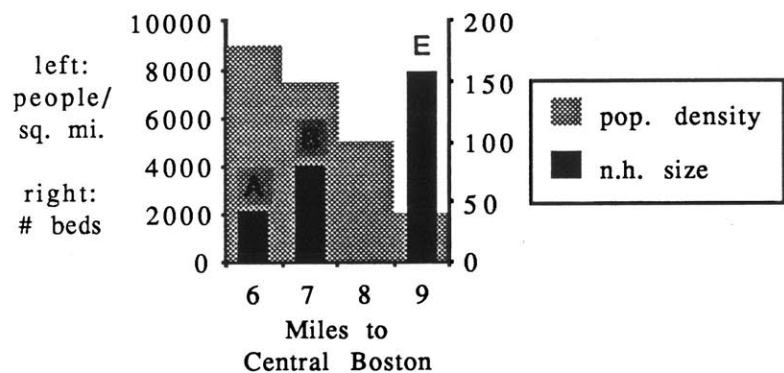
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It should be noted that two of the facilities (sites D and F) have expanded their existing buildings after original occupancy and that a third (site

B) was built on the site of a previous smaller nursing home. Though this analysis is rather limited in scope using a small number of nursing facilities within a limited geographic area, it is the opinion of the researcher that these inter-relationships of characteristics for long-term care facilities would be replicated in subsequent studies.

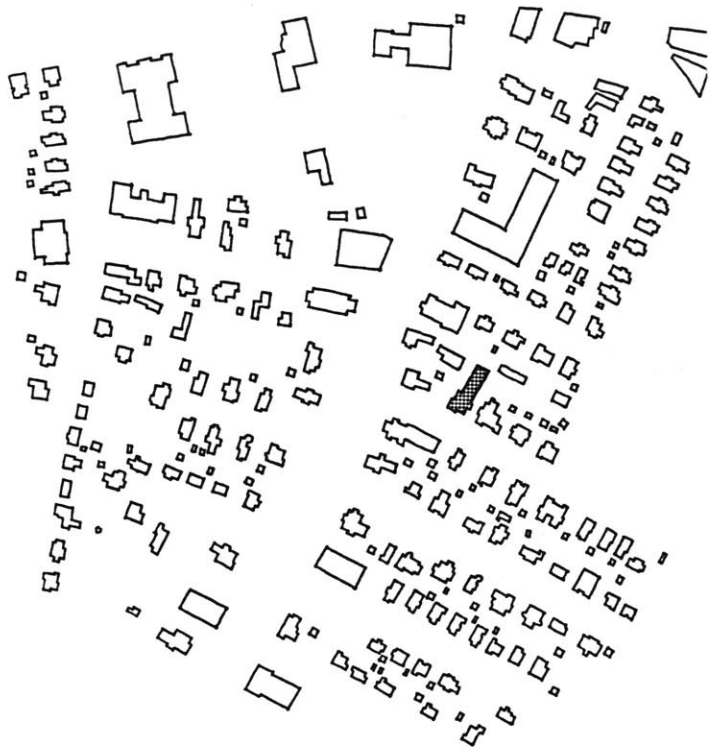
Subsequent analysis of three representative facilities from the previous sample, ie: Sites A, B and E. The environment immediately surrounding each of these facilities was mapped and population densities calculated in an area of one square mile around the site.

Population Density and Nursing Home Size  
by Distance from Central Boston  
Interpreted Data: 1980 U.S. Census and  
Massachusetts Department of Public Health



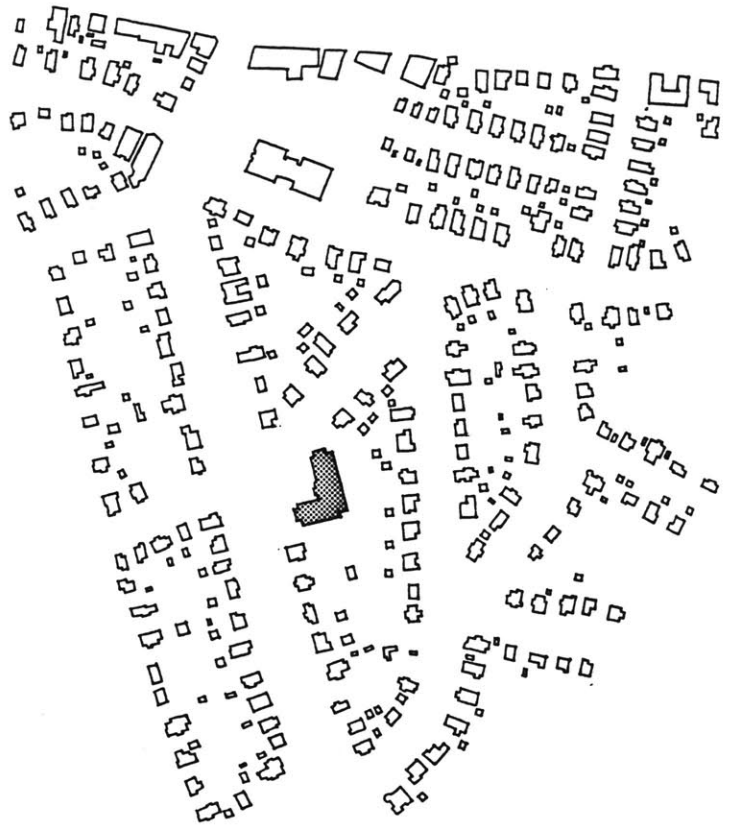
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*Site A, a small 42 bed nursing home is located immediately within a two-family residential area in Arlington Center. The facility is actually a large old house which was renovated with an extension added to the rear. The character of the building fit directly in with the surrounding neighborhood since the front of the building was one of the original structures in the neighborhood.*

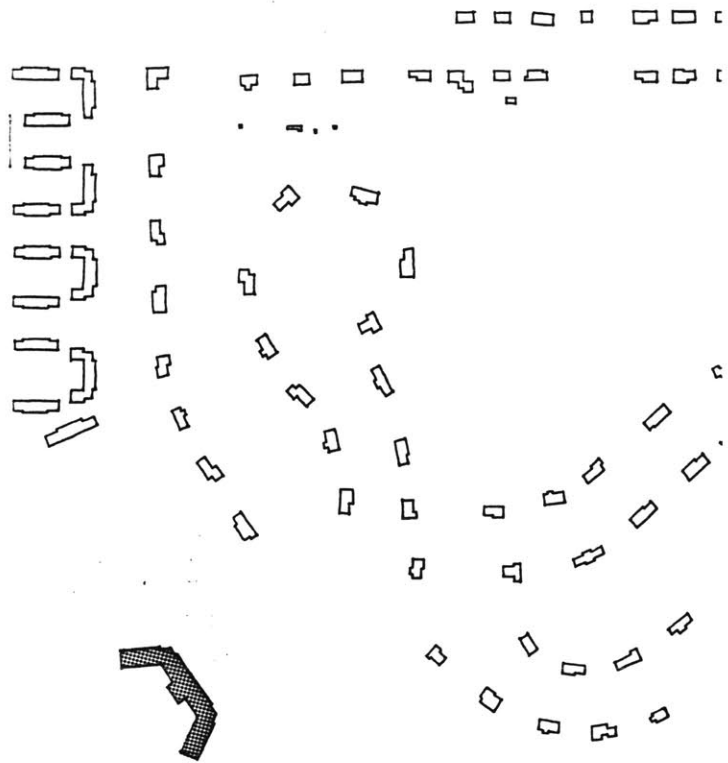


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Site B, is located within a single-family area of Arlington Heights. The facility originally occupied an old mansion. The existing facility, with 80 beds, was built in 1972 and the former building torn down after the residents were moved. The character of the facility is that of a mid-sized apartment building.



Site E is a large multi-level nursing facility with 158 beds. Though this facility was also built in 1972 site location and physical design characteristics are quite different from those of Site B. The facility is located in an area with low density single-family housing to one side and a medium density apartment complex on the other. The site is not served by any form of public transit and a shuttle bus is used to carry employees to the Bus line. The design of the building adopts an institutional character.





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Minuteman Home Care with offices in Lexington provides all case management and service referrals for residents of 19 communities. Minuteman serves mainly a *Case Management* role in the provision of services. Actual services are delivered by private home care providers located throughout the catchment area. To a certain degree the actual providers are competing with one another for referrals from Minuteman.

All home care services referred by Minuteman to the providers are for income eligible individuals. The actual care providers also offer services on a private pay basis to people who do not meet income guidelines. One provider estimated that private pay customers accounted for 30% to 40% of his business.

#### **Institutional vs. Community Services**

It is reasonable to assume that the growth in Home Care services has reduced the need for the production of additional nursing home beds. According to a sampling of home care recipients in 1983, it was estimated that 30% met the requirements for placement within nursing homes Commonwealth of Massachusetts, EOE). An estimated 16% of these would actually have sought placement in a nursing home if homecare services had not been available.

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The size of both the institutionally based and community based long-term care systems and the increased demand for services caused by growth in older populations suggests that strong linkages need to be built into the planning formulas to guide the growth of both nursing home beds and community services.

Using current planning practices the two systems of long-term care services will grow independently of one another. The segmentation of institutional and community-based service systems, their funding mechanisms and their geographically defined catchment areas point out the need for new planning strategies. A consolidated planning process must be developed to balance the supply of all long-term care services.

Neighborhood-based service settings have the potential for providing such a consolidated service network. This need for a consolidated long-term care service delivery system returns us to our original investigation. That is, the question of whether the neighborhood concept is a useful planning unit in the provision of services for older people.



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## **3 The Model**

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### **A Neighborhood Service Setting**

In the preceding analysis two key criteria for the development of neighborhood-based service settings for older people have been investigated. These are:

- The concept and definition of the neighborhood as a planning unit.
- A definition of the service needs of the population of older people.

By utilizing the neighborhoods as defined within the case study community and applying estimates for service needs of older people it is possible to determine the magnitude of service needs within each individual neighborhood area. These needs are as follows:

Neighborhood	Total Population ( 65+ years)	Nursing Beds (@ 5.8%)	Community Need (@ 20%)	Formal Homecare (@ 9%)	Adult Day Health (@ 2%)
East Arlington	2400	140	480	216	48
Arlington Center	1600	92	320	144	32
Arlington Heights	1300	76	260	117	26
Morningside	1100	64	220	99	22
Mass. Avenue	1600	92	320	144	32
<b>Total</b>	<b>8000</b>	<b>464</b>	<b>1600</b>	<b>720</b>	<b>160</b>

Estimated Magnitude of Service Needs by Neighborhood Area within Arlington

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Some modifications to the magnitude of need as defined in earlier sections have been made in order to better represent our case study community and to reflect changes in magnitude which are likely to occur when all types of services are available. Nursing home utilization has been taken as 5.8% of all older people. This is higher than the 5% national average but lower than the 6.8% calculated for Arlington based on population characteristics. In arriving at this figure it was assumed that the availability of adult day health and home care programs will effectively reduce the need for nursing beds. This being the case, adult day health utilization was increased to 2%. Home care service utilization was placed at the current level of 9% within Arlington, ie: 6% publicly funded plus 3% private pay. Even with these assumptions of high program utilization there remains over 10% of the population of old people receiving only informal care.

As indicated by the preceding chart each of the neighborhoods defined in the case study appear to contain significant numbers of old people requiring various long-term care services.

Given these levels of service needs within individual neighborhood units the potential clearly exists for the establishment of service settings utilizing the neighborhood concept.

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### **The Nursing Home - A Consolidated Service Setting**

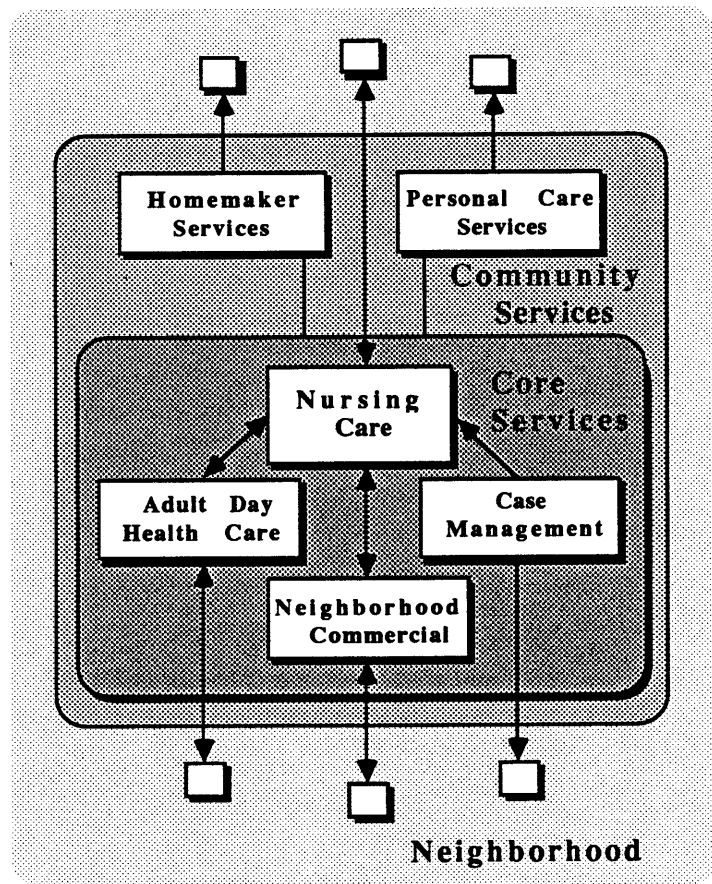
With increases in the population of people 65 years of age and older there will be an growing need for long-term care services of all types, including nursing homes, adult day health care, home care programs, meals programs and neighborhood commercial facilities. To assist in the provision of these and other services it is logical for the nursing home to play a central role. The development of neighborhood-based service settings will allow the provision of a full range of services to the entire community of older people.

The use of nursing homes in this manner has been described as the provision of a *Long-Term Care Spectrum* (Breger 1985). The long-term care spectrum involves the comprehensive provision of all services required by older people from a single source. In this way, nursing homes can provide a complete range of services from in-patient care for those requiring this level of intensive services to in-home housekeeping and personal care services for people who are capable of caring for themselves. Similar to a continuing care retirement center, neighborhood-based service settings are capable of providing a total continuum of care. Unlike CCRC's, however, through the development of neighborhood-based service settings older people would not be required to move from their familiar

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surroundings in order to receive care.

The concept of the "geographically dispersed" CCRC is under development by Brandeis University and Friends Service for the Aging (Pynoos 1985). In this model, enrollees would pay an entrance fee, in addition to monthly fees, in order to guarantee the receipt of various health and long-term care services. As services are needed they are either provided within the enrollees home or at a facility



A Model for Neighborhood-based Service Settings for Older Community Residents

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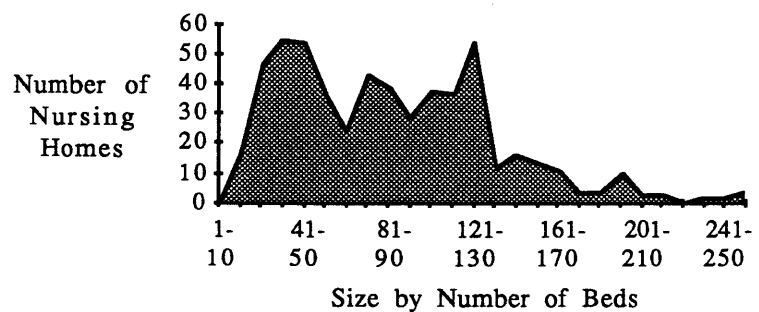
utilized by the sponsoring organization. Essentially, the geographically dispersed CCRC is a network of affiliations and facilities brokered together to provide guaranteed services.

Neighborhood-based service settings would be ideally situated to provide this form of guaranteed long-term care to residents at a neighborhood level.

### Size of Facility

The minimum feasible size of 120 beds is often cited for the development of nursing homes (Breger 1985, Aranyi 1980) and might argue against the use of neighborhoods as long-term care planning units. Only one in five of our case study neighborhoods contained enough older people to support this size facility. An analysis of the size distribution for all licensed nursing facilities within the Commonwealth of Massachusetts produced interesting results.

Nursing Home Size Distribution -  
Source: Commonwealth of Massachusetts  
Department of Public Health Data Base



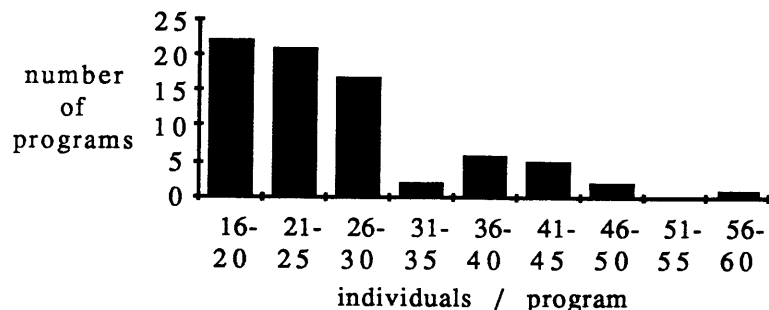
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As indicated by the chart above, a majority of nursing homes contain fewer than 90 beds and significant numbers have 50 and fewer beds within the facility. In fact, very few nursing home contain 120 or more beds.

It has also been pointed out that the benefits of quantity maximization within nursing homes (ie: increased size of facilities) is not pronounced (Ullman 1987) and the issue of whether large-scale nursing homes increase quality of care or simply serve as warehouses for older people is being debated.

In the case of Adult Day Health Care Programs a neighborhood sized unit appears nearly ideal. The preferred size of programs funded through state Medicaid is 24 people. The chart below shows the size distribution of all adult day health programs in the Commonwealth.

Adult Day Health Care Size Distribution -  
Source: Commonwealth of Massachusetts  
Department of Public Welfare



Nearly all programs have fewer than 30

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participants and approximately 50% have a capacity of between 16 and 25. Given a 2% utilization rate, all five of our case study neighborhoods have adequate demand for these services at reasonable program sizes.

Case management and home care services have few constraints in terms of efficiencies of scale. The 6 case managers currently operating through Minuteman Home Care could easily be assigned neighborhood areas and be based out of neighborhood settings. Direct care services provided from this same setting would help assure a comprehensive approach and continual monitoring of care to neighborhood residents.

Neighborhood commercial services such as laundry, beauty/barber shops and pharmacists are already a part of nursing home facilities. Opening such services to neighborhood residents could only increase the viability of operations. Grocery and convenience item sales may be more difficult though many elderly housing facilities and CCRC's offer this service with a market of fewer than 300 residents.

As additional services such as adult day care and home care are made available to the greater community an expanded market is produced. This expansion can contribute to the reduced dependence of nursing home revenues on expensive in-patient bed capacity, thus increasing the feasibility of smaller facilities.

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### **Relationship to the Neighborhood**

Neighborhood-based service settings for older people are consistent with and encourage the concept of neighborhood units in several ways. As a functional use the need for long-term care services has been shown to exist on a neighborhood level. In addition to health and social services many neighborhood areas are found to be service-poor in terms of neighborhood commercial services. Services such as grocery and drug stores, beauty shops and laundry facilities would be of great benefit to older people if they were located within walking distance of their homes. Nursing homes already contain many of these services which need only to be made available to community elders. A great many resources and capabilities are inherent within and already provided by nursing facilities. As physical settings, neighborhood service settings would serve as an imagable entry point for services required by older people. A familiar setting where access to services is assured.

The imagability and familiarity of the neighborhood as a planning unit for service provision to older people has other positive factors. The importance of informal linkages in the the provision of information and entry into service systems is well documented. In a recent study, non-utilization of community respite and day care services geared to assist caregivers for dementia patients was attributed to caregivers



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not wanting to leave loved ones in the care of strangers (Caserta 1987). Neighborhood service settings would alleviate such utilization and referral problems through the establishment of service settings as an inherent component of the urban framework.

A final benefit to the provision of services on a neighborhood level is the potential for an increase in the quality of care provided within nursing homes. As pointed out in the case of CCRC's, (Branch 1987) unlike free-standing nursing homes, independent-living elderly residents know that their own nursing home is where they will go if the need arises and therefore have the incentive and vested interest in assuring that their nursing home is the kind of environment they would like to live in should the need arise.

This concept is directly transferable to neighborhood service settings. Through the knowledge that a particular setting "belongs" to the neighborhood a sense of ownership and community may be developed assuring quality care. As the population ages the potential exists that neighborhoods might someday be judged by the quality of their long-term care services, much as neighborhoods and communities are now judged by the quality of their school systems.

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## Conclusion

There is little doubt that the population of older people requiring health and social services will increase significantly in the future. This trend combined with the preference of older people to remain living within single-family suburban neighborhoods indicates a need to reexamine current models of long-term care service provision which segment the planning and development of institutional and community based service systems at regional levels.

This study demonstrated the usefulness and advantages of utilizing the neighborhood concept in the planning and development of consolidated settings designed for the provision of health and social services to older community residents. Yet, implementation of a system of service settings within single-family residential neighborhoods could face strong opposition from homeowners who are unaware of the need for these services at a local level and from service providers who may not choose to invest in facilities of reduced scale on higher priced land.

To further the establishment of neighborhood service settings the following areas of research are suggested:

- Investigation of means for encouraging the development of neighborhood settings, by

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removal of restrictive zoning ordinances and the purchase of potential building sites strategically located within neighborhoods.

- Techniques for limiting the size of new facilities to meet only the market demands of immediately surrounding neighborhood areas as opposed to current regional market considerations.
- Research into the acceptability of service settings within residential areas in terms of scale and massing. These studies may compare physical attributes of service settings to other, more generally acceptable, institutions such as schools.
- Community attitudes towards nursing homes.
- The effects of economies of scale on the development of long-term care settings to determine the minimum feasible size for facilities and the potential areas for shared services between nearby settings.
- An examination of the inter-relationship between service utilization of various types of long-term care services when all types of care are available and accessible. This research could dramatically alter projections of the need for additional nursing home beds.

Research efforts such as those mentioned above have the potential for creating an awareness that long-term care settings are an essential part of the support services within any community and as such, should be integrated into the framework of urban design elements which combine to create "*good city form*."

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